AUGUST, 1929

COTTON

THE TEXTILE MANUFACTURING JOURNAL

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OF AMERICA

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(PRONOUNCED SHARDONEEZE)

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Vol. 93 **COTTON** No. 10

August, 1929

W. R. C. SMITH, Publisher
T. W. McALLISTER, Editorial Director ROBERT W. PHILIP, Editor

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In 1790, Samuel Slater completed and put into operation a mill with 72 spindles in Pawtucket, Rhode Island. Out of this modest start has grown a flourishing group of properties in New England and in the South, making and finishing a variety of fabrics.

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In serving the Slater interests both in the South and in New England we have contributed an industrial engineering experience covering three decades.

J. E. SIRRINE & COMPANY
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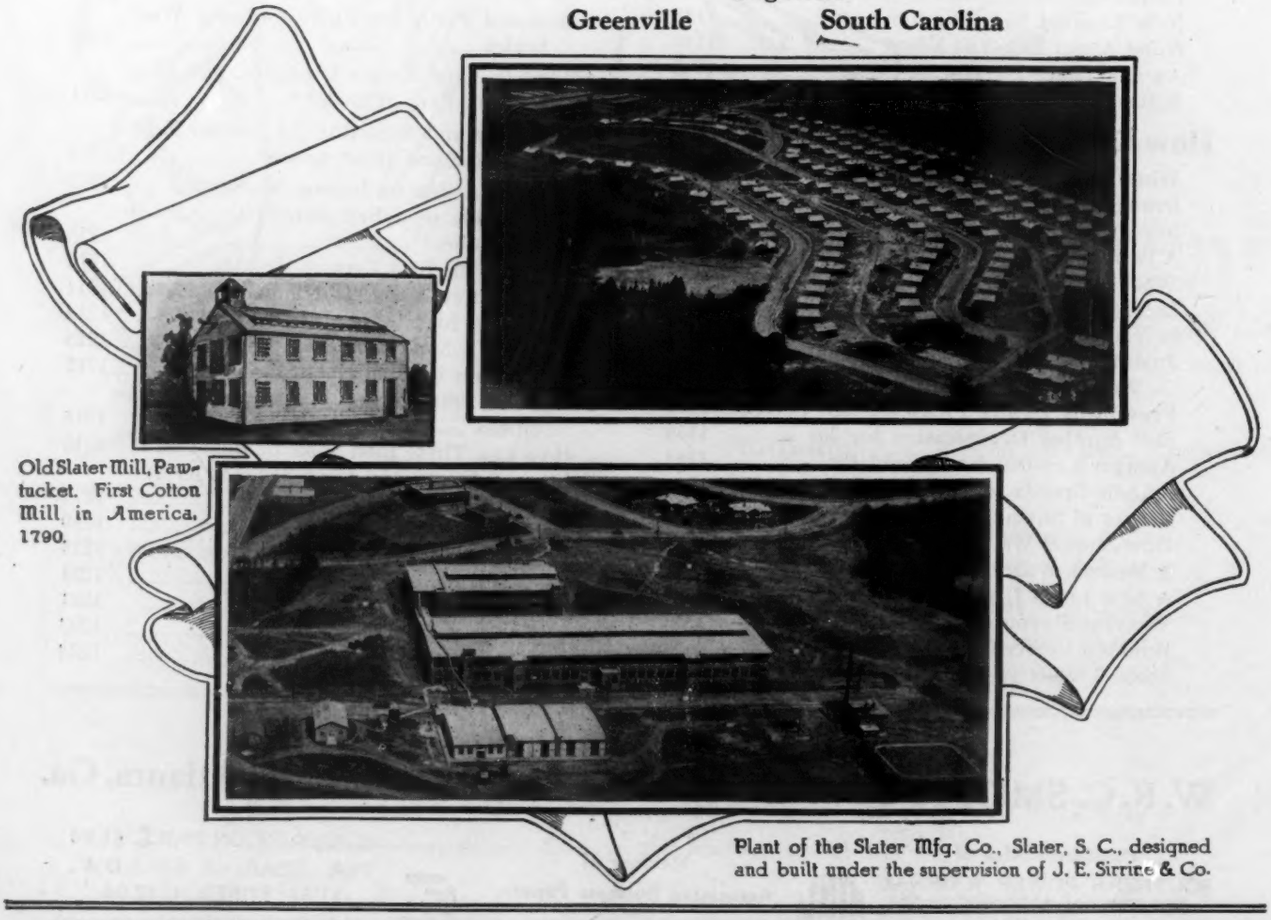
Greenville South Carolina



Old Slater Mill, Pawtucket. First Cotton Mill in America, 1790.

Plant of the Slater Mfg. Co., Slater, S. C., designed and built under the supervision of J. E. Sirrine & Co.

ENGINEERING CONSULTANTS ON THE SOUTH

COTTON

Vol. 93 August, 1929 No. 10

The Maintenance *of* Motors *in* TEXTILE PLANTS

By H. W. Reding, Textile Engineer
Westinghouse Electric & Mfg. Co.

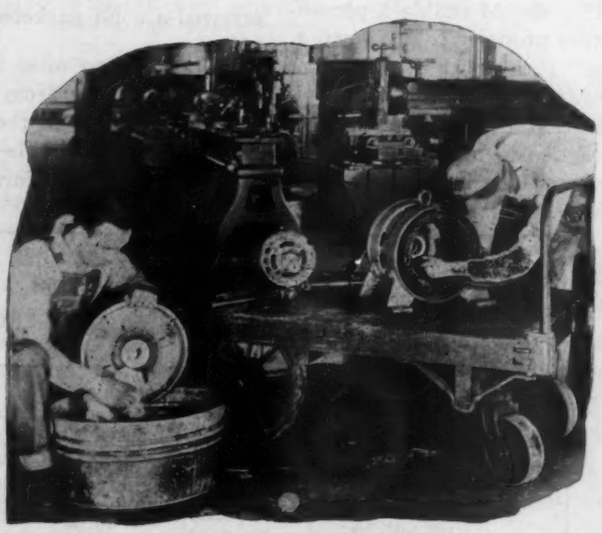
A TEXTILE MILL has many kinds of machinery which for production depend upon reliable sources of motive power. First attention is naturally and properly given to the adjustment and maintenance of the textile machinery. On the other hand the motors and electrical equipment which provide the motive power must be in working condition or the finest productive machinery will be useless. It is to suggest means of improving the life and usefulness of motors that this is written.

A motor is a very simple piece of equipment. There is a winding held in an iron core and this winding is insulated by cotton, paper and fiber impregnated with a form of varnish. In addition there is a rotor carried on a shaft between two bearings. As long as the bearings and the insulation on the windings are in proper condition, the motor is ready to deliver a steady and reliable flow of power.

In order that the winding and insulation may be in good condition two things are necessary. The winding should be clean and it should be kept at a temperature which will not burn the cotton and fibrous insulation. If overheating occurs, vibration will crack the brittle and dead insulation, and an electrical failure will eventually result.

To cool motors of the open type, fans are provided which circulate air over the ends of the coils and the iron to carry away the heat which is generated whenever the motor runs. If this circulation is retarded or if the coils get coated with a mixture of lint and oil the natural result is higher temperature. A totally-enclosed motor such as a loom motor, does not depend upon circulation of air through the motor but must radiate the heat from the external surface of the motor. Accumulated dirt on the outside therefore acts as a heat insulator to keep the heat in the motor.

We may therefore put down as the first and most important item of motor maintenance that the motor should be kept clean both inside and outside. To do this requires that the motor be cleaned and inspected in addition to frequent cleaning by brush and compressed air.



Cleaning a Textile Mill Motor.

Since there are so many kinds of types of motors, some with screens, some without, and since the amount of lint and dust in the air varies, it is not practical to attempt any specific instruction regarding motor cleaning. Motors with screens should be wiped off often enough to avoid a heavy mat of lint on the screens. Many mills have a daily schedule of brushing off motors in addition to which they are blown out with compressed air once a week. This would be adequate in many cases. The lack of maintenance is more apt to come in connection with the thorough cleaning. For any particular installation it is possible by watching the motors to tell when the temperature is beginning to creep up, and based on this observation, it should be possible to determine how often there should be a thorough cleaning.

To clean the motor properly it is necessary to remove the end brackets so that the windings are exposed. The accumulation of lint and dirt may then be entirely removed. Small motors are much more likely to be clogged than large ones and motors with screens are very apt to suffer since the screens hide the inside accumulation. The screen keeps out all but a very little fine lint and dust but in the course of time this piles up and entirely stops air circulation if it is not removed.

As a guide to the making of a cleaning schedule, it is well to know something of motor temperatures. Many motors operating at entirely safe temperatures feel alarmingly hot to one not familiar with the subject. A motor is safe when the outside of the laminated iron core is at a temperature not in excess of 90 degrees Centigrade or 194 degrees Fahrenheit. This, however,

MOTOR RECORD CARD

LOCATION _____

DRIVING _____

MAKE _____ H.P. _____ FULL LOAD SPEED _____ VOLTS _____ FRAME Nº _____

PHASE _____ CYCLES _____ STYLE Nº _____ SERIAL Nº _____

SPECIFICATION OF REPAIR PARTS

BEARING-PULLEY END _____ BRUSH _____

BEARING-FRONT END _____ BRUSH HOLDER _____

COIL _____ ROTOR COIL _____

MOTOR RECORD

FORM 1

is the limiting temperature and the temperature should not be allowed to go this high merely for lack of cleaning. The motor temperature depends upon the rise added to the temperature of the surrounding air. Therefore motors are naturally hotter during summer weather. This leads naturally to the suggestion that the motors be thoroughly cleaned just before hot weather begins.

Most motors are sold under a guarantee which says essentially that the temperature of the motor under full load will not rise more than forty degrees Centigrade above the temperature of the surrounding air. This usually means a total temperature of approximately 65 to 75 degrees. However, most motors operate below full load, also many motors actually have a full load temperature rise of less than 40 degrees. For these reasons a clean motor will frequently operate at less than 65 degrees.

The foregoing information should enable a person who wants to maintain motors properly to lay down a definite system of cleaning. It is most desirable to make a definite schedule regarding the inspection and cleaning of motors and see that the schedule is followed. It is dangerous practice to allow the matter to go until someone wonders how long it has been since the motors were cleaned. With such a system of maintenance it is probable that the motor has not been cleaned for several years.

The other principal maintenance item is that of oiling and keeping the bearings in good condition. Everybody knows that a bearing needs lubrication but there is the very prevalent and very unfortunate belief that if some oil is good, more is better. *This is not the case.* A large majority of the motor bearings in a cotton mill are filled too full and too often. With a properly constructed motor, the outside of the bearing housing and end bracket should be dry and how often does one see oil and dirt all over the ends of the motor? Sometimes there are drip pans. When this condition is seen, either the motor bearings leak or they are over-oiled and the latter is almost always the case. This has a very direct effect on the life of windings and the general cleanliness of the motor. Undoubtedly there are more motor failures attributable to too much oil than to all other cases combined. Oil and lint accumulate and bake onto the windings thus forming a most excellent coating to retain the heat and char the real insulation. *Don't over-oil motors.*

There are four types of motor bearings in service: ordinary sleeve bearings; waste packed bearings; sealed sleeve bearings; and ball or roller bearings. The frequency of inspection and filling depends upon the type of bearing and the service. Either of the types of sleeve bearing is usually equipped with an overflow plug. This plug should have a good cover held down by a spring with a cork gasket under the cover. If the cover or gasket are in poor condition oil will almost certainly creep out. Also there should be no lint hanging over the tip of the plug to siphon the oil. With sealed sleeve bearings the overflow plug is sometimes replaced with a fitting into which can be screwed a solid gasketed pipe plug.

When a ring oiled bearing is running, oil is carried by the ring from the reservoir. The result is that the oil level in the reservoir is lowered. If the bearing is filled at this time it will overflow when the motor stops. Therefore, the bearing should be filled

MOTOR OVERHAUL REPORT

DATE _____ WORK DONE BY _____

MOTOR Nº _____ WERE WINDINGS OILY WHEN OPENED? _____ CONDITION OF INSULATION _____

WAS MOTOR CLEAN AND IN GOOD CONDITION WHEN YOU LEFT IT? _____ REMARKS _____

FORM 2

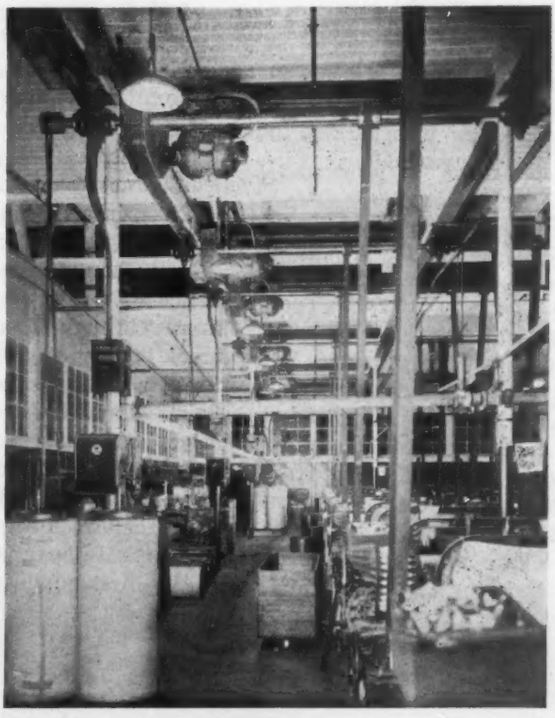
READ this article and pass it along to the man in charge of electrical maintenance. Mr. Reding points out that motor maintenance involves two important elements—keeping them properly cleaned and properly oiled. Proper cleaning is comparatively simple with an adequate schedule. But "proper" lubrication is often misunderstood. Too much oil is as bad as not enough, and is much more common. This article is a most comprehensive discussion of motor maintenance with especial reference to textile mill equipment.

only when the motor is at rest. Furthermore, *enough* oil is *enough*. If upon inspection there is plenty of oil in the bearing, don't add more. An oiler's efficiency is not measured by the amount of oil he can put into bearings but rather by an absence of bearing failures and by his ability to keep the oil from running out of the housing.

Ordinary sleeve bearings require frequent inspection. It is usually desirable to inspect every week but the bearings should need oil very much less frequently than this. Perhaps only once in three months.

Sealed sleeve bearings need inspection only once in six months and oil once a year is usually sufficient.

With any type of bearing it is well to inspect the bearings at frequent intervals during the first month after a new motor is installed. Any defects in the bearings are almost sure to come to light during this starting period.



A typical view of ceiling mounted motors equipped with sealed sleeve bearings. Oil drip in this place would be most undesirable.

Waste packed bearings are more difficult to gauge properly. A tablespoon full of oil once in four to six months will usually be a great plenty. If the waste is taken out it should be replaced with a good grade of coarse wool yarn waste. Waste should be replaced once in two or three years at least.

Ball or roller bearings are frequently grease-lubricated. Here is another case where it is customary to give each bearing a generous shot of grease every time the motor is inspected. A very small amount of grease added once in three or four months is sufficient for most bearings. Care should be taken not to overgrease as this will cause overheating of the bearings.

Once each year the bearing housing should be opened and the surplus grease wiped out. Since the slightest amount of grit or dirt may seriously damage such a bearing, it is essential that the work be done carefully to keep out all dirt.

The first requirement of grease for use in ball bearings, is that it be *clean*. A can of grease which has stood open and collected dirt should promptly be thrown out. Likewise the grease gun should be entirely free from dirt. The grease itself should be compounded from a heavy mineral oil and sodium or calcium base soap. For most purposes sodium base is desirable but for damp locations calcium base is usually better. Grease should be free from all fillers such as graphite and mica and should be free of acid or alkali. Vegetable or mineral greases should not be used since they may liberate acid or separate into the components of oil and soap.

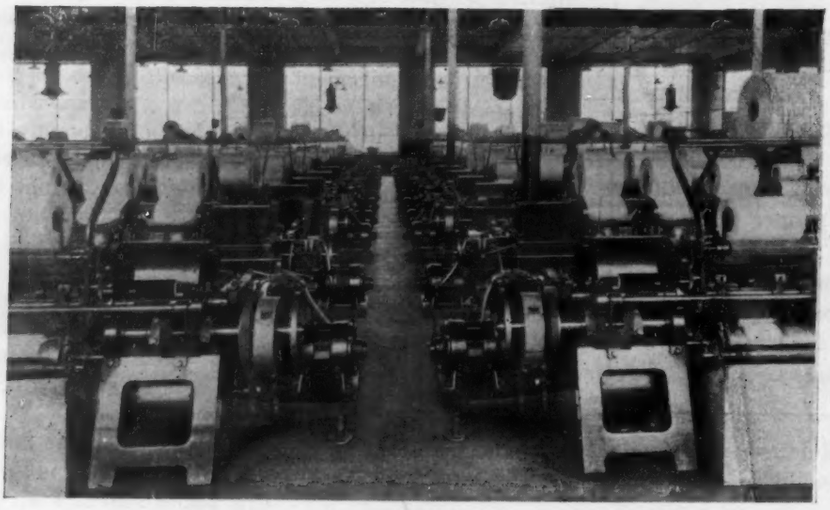
To sum up, therefore, the essence of motor maintenance is to keep the motor windings clean and properly cooled and to keep the bearings supplied with the right amount of good lubricant. All of this is simple when intelligently handled. For the average cotton mill, very little time will be consumed in maintaining motors if it is done with a comprehension of the requirements of the equipment and if it is done systematically. System pays both in reduced cost of maintenance and reduced loss of production from motor failure. For any installation it is possible to lay out a definite plan for cleaning, oiling and inspecting motors and having made a plan which fits, it will be valuable only if followed.

The method of handling the system is subject to many variations to fit conditions but as a guide, here are some suggestions which may be helpful to the man doing this work:

First, there should be a record of motor equipment. There should be a copy of the record in the office and

Don't Over-Oil Motors!

EVERYBODY knows that a bearing needs lubrication, but there is the very prevalent and very unfortunate belief that if some oil is good, more is better. A large majority of the motor bearings in a cotton mill are filled too full and too often. With a properly constructed motor, the outside of the bearing, housing and end bracket should be dry and how often does one see oil and dirt all over the ends of the motor."



Typical installation of small motors driving combers.

one in the electrician's hands. Form No. 1 is suggested as one which carries the information usually desired. No doubt modification could be incorporated to make the form most suitable for any particular condition.

As we have already seen, there are two types of cleaning required in addition to the lubrication. There is the cleaning that motors get every day and every week which is simple but must be done carefully. Then there is the periodic cleaning and inspection to be sure that motors are clean inside as well as outside. We might call these types of cleaning regular and special. The lack of regular cleaning is quickly apparent and if there is a well defined system, a very small amount of supervision should be sufficient to keep this work from being neglected. On the other hand the special cleaning or the need of it is not particularly apparent, at least to the eyes, and more care must therefore be taken to see that the prescribed schedule is being followed. Since this work is done at relatively infrequent periods, a form filled out by the man doing the work and reporting on the condition of the motor enables the office to check up on the attention given this part of the motor maintenance. A simple report such as is shown in Form No. 2, may be filled out for each motor given special cleaning and turned in to the office. The record may then be transferred to the motor record card.

At the time of this special cleaning the motor should have a thorough inspection. Motors have very small clearance between the rotor and the stationary iron core and as the bearings wear the clearance decreases below and increases above. Air gap gauges are readily obtainable from motor manufacturers and may be used to check up the clearances. If the clearance below the motor should decrease to 8 thousandths of an inch in small motors and ten thousandths in larger motors, the bearing linings should be replaced with new ones. Two air gap gauges, one of 8 mils and one of 10 mils, should be included in the equipment of the maintenance department.

Insulation tends to develop small cracks on the surface due to repeated heating and cooling. The life of the insulation may be prolonged by cleaning the winding with gasoline and applying a coat of a good air drying varnish. The treatment is required very infrequently, perhaps once in two years for average service. Any motor manufacturer can recommend a varnish suitable for this purpose.

There is the slogan "The best safety device is a careful man," which might be paraphrased by saying "the best maintenance system is intelligent interest." Without this, systems, forms and schedules are worthless. A plant in which motors are kept clean and are "understandingly lubricated" is a plant which will receive long and economical service from their motors.

Amco Air Plain Tours.

"Everything ship shape?"
"All set."
"Contact!"

Thus, in a thoroughly modern and up-to-date manner, does the American Moistening Company, 260 West Exchange Street, Providence, R. I., begin the issuance of a set of publications entitled "Air Plain Tours Through Many Mills." Tour No. 1, issued in June, begins a series of twelve "air plain" tours through textile mills—"to make the problems of air plain." James W. Cox, Jr., of Cox, Fuller & Mauersberger, consulting textile specialists of New York, is the pilot on these tours, in each which visits will be made to several textile mills, from Maine to Mississippi, in the Amco Special Plain. Colonel A. M. Cotton has general supervision of these tours.

The first publication in this series, covering Tour No. 1, first gives a brief explanation of what humidity is, what it does and why it is so important. After an inspection tour of the American Moistening Company's plant in Providence, the first landing is in Rhode Island where the tourists learn how sufficient card room moisture content stopped troubles and increased production in a mill in that state. The next flight is to a mill in Virginia where the results of automatic control of humidity in a spinning room are discovered. The plane then slips down to North Carolina where the visitors make an investigation of humidification of winding and packing rooms in a yarn mill. The itinerary reverts to New York next, where it is shown that varying moisture content in finished goods causes complaint in a finishing plant cloth storage department.

The next tour will continue these figurative visits to various textile plants, and the series of twelve tours will cover 43 mills from Maine to Texas. The thoroughly up-to-date method of telling this story, and the breezy way in which the material is prepared makes the publications of unusual interest. Mill men desiring reports on these "Tours through Textile Tangles," may secure these publications as issued upon request to the American Moistening Company.

A System of Maintaining Uniformity *in* Picker Laps

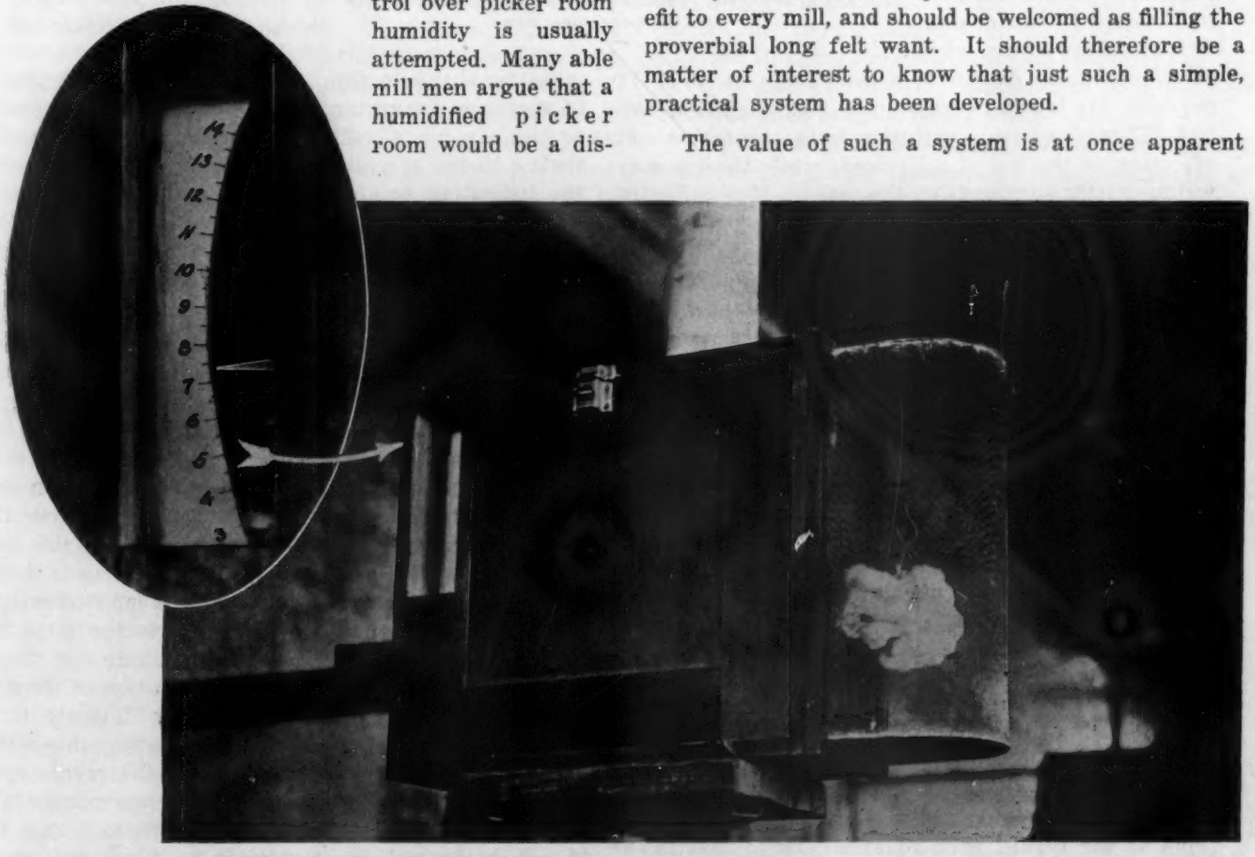
By A. P. Aldrich, Jr.

EVERY mill man has wrestled with the problem of making uniform picker laps, which are the foundation of even work throughout the mill. A number of factors enter into the question of how to produce uniform laps; some of these being mechanical, and some due to atmospheric conditions. The mechanical variables can be fairly well controlled, but little, if any, control can be applied to atmospheric conditions in a picker room.

Owing to the tremendous volume of air that is drawn through the cotton in the opening and picking processes, it may be reasonably assumed that the finisher lap will contain a percentage of moisture proportional to that in the air drawn through the picker room. Even if the cotton in the bale is damper or dryer than obtaining atmospheric conditions would warrant, it will lose or gain enough moisture from the air to bring it to approximately the proper regain in passing through the pickers. Furthermore, on account of the large volume of air passing through the pickers, it is impractical to humidify picker rooms without recapturing the exhausted air and recirculating it through the machines. Consequently, no control over picker room humidity is usually attempted. Many able mill men argue that a humidified picker room would be a distinct advantage, even if practicable, as the drier the cotton, the better it will clean, and furthermore, a progressively increasing humidity throughout the mill is desirable, so that in their estimation, the ideal arrangement would be bone dry cotton in the opening and picking processes, with increasing humidity throughout the processes that follow.

Granting that the picker room is going to use unhumidified air at atmospheric conditions, the only way to assure having a uniform quantity of cotton in the laps is to make allowance for the difference between existing atmospheric conditions and the standard. A number of schemes for doing this have been tried with more or less success. Most of these systems of moisture compensation require the calculation of relative humidity, and reference to tables giving the proper weight of laps for given humidity conditions. Such arrangements are beyond the grasp of the average picker tender. Any system of moisture compensation, to be successful, must be so simple that any picker room operative can understand and apply it. Such a simple system of compensating for the excess or deficiency of moisture in laps would be of immense benefit to every mill, and should be welcomed as filling the proverbial long felt want. It should therefore be a matter of interest to know that just such a simple, practical system has been developed.

The value of such a system is at once apparent



Instrument for Indicating Moisture Content in Lap. As the moisture content in the sample of cotton at the right changes, a needle (just above white arrow) moves to the percentage of regain it contains on the scale in the oval. This figure is used in adjusting the weight on the picker lap scale (see next page).

from a consideration of the effects of moisture variation in laps. Assuming a 40-pound standard lap, consider the effects of excessive or insufficient moisture. By "40-pound standard lap" is mean a lap that will weigh 40 pounds when containing 6.5 per cent regain. At any other regain condition, the lap, if weighing 40 pounds, will contain either more or less cotton than it should, and will no longer weigh 40 pounds when brought to the standard regain in the humidified portions of the mill. In practice, very few laps actually have 6.5 per cent regain. The regain may vary from about 3 per cent to as much as 13 per cent in a few days, and in some climates this range may take place in a single day. This variation in regain has a devastating effect on all efforts to hold even work.

HOW THE LAP SCALE IS ADAPTED.

The figures on the small quadrant on this picker lap scale represent the correct weight of the lap for any regain indicated by the instrument shown on the preceding page.

On a very dry day, if there is 3 per cent moisture in the lap, it will contain 38.8 pounds of cotton, while on a very damp day, with a moisture content of 12 per cent, the lap will contain only 35.2 pounds of cotton. There we have a variation in the actual amount of cotton in the lap of 3.6 pounds while the lap may weigh exactly 40 pounds on the scales. Most mills try to hold their lap variation to one pound total, and many insist on closer tolerances than that. The futility of trying to hold a lap to a variation of one-half pound on either side of the standard weight without correcting for moisture variations is at once seen from this illustration. If a lap that weighs exactly 40 pounds on the scales may actually be either 1.5 pounds too heavy, or 2.5 pounds too light, depending on the weather, obviously the weather must be taken into consideration in weighing the laps if any uniformity is to be maintained. Where this compensation is not made, a lap that is rejected as being a pound too heavy, may really be a pound too light.

To correct for this moisture content, it is necessary to know the actual percentage of regain in the cotton at any given time, and to know it exactly, without recourse to any approximations. The only way to get this percentage of regain exactly is to weigh the cotton itself to determine how much moisture it has absorbed. The laboratory method of determining regain is to dry the cotton out and note its loss in weight. By applying the reverse process we can arrive at the regain with equal accuracy; that is, we take the bone-dry cotton and note the increase in weight as it regains moisture when exposed to the air. There is no approximation in this method; it is absolute and exact.

The moisture compensation system referred to before is based on this principle. An extremely sensitive balance, of special design and construction to combine sensitiveness with dependability and durability, is mounted in a dustproof case, on one end of which is a wire mesh cage to permit free circulation of air. The arm of the balance that carries the cotton element protrudes through the side of the cabinet so that the cotton hangs in this wire cage. The mesh of this wire is fine enough to prevent drifting lint and dirt from affecting the weight of the cotton element. These elements will operate in a moderately dutsy picker room for two or three months before collecting enough of the impalpable dust that will pass through the screen to affect the accuracy of the instrument. Elements may be readily changed as often as desired. This regain indicator shows in plain figures the actual percentage of regain in the cotton in the same room and exposed to the air for a sufficient time to regain properly. Owing to the special construction of the instrument, the indicating pointer moves ¾ of an inch for each per cent of regain, which makes it possible to read the indicator with ease at a considerable distance, and with great accuracy.

To apply the reading of the indicator to the correction of lap weight, a special quadrant is applied to the lap weighing scale, the figures on this quadrant representing the correct weight of the lap for the indicated regain. Thus, if a 40-pound lap is desired, 6.5 on the superimposed quadrant would be placed over 40 on the scale, and the various other figures on this quadrant, representing regain, would come over the weights corresponding to that regain. After this new quadrant is affixed to the scale, no attention is thereafter given to the number of pounds a lap may weigh. The scale pointer is simply brought to the same figure on the quadrant as the regain indicator finger points to. This so simplifies the operation of the system, that anyone can use it. Even an illiterate, if he can read figures, can understand and apply this method. The picker tender simply reads the regain indicator at intervals and weighs the lap accordingly. If, for example, the regain indicator points to 5, then the hand on the scale must point to 5. Since each graduation on the new scale quadrant represents approxi-

(*Continued on page* 1187.)

Observations of HANK G. SPINDLE, SUPERINTENDENT

By H Gilmer Winget

Article II

WE were gratified at the reception accorded to this new feature with the appearance of the first article last month. After introducing you to his friend Hank last month, and giving you some of his opinions, Mr. Winget reports herewith another conversation with him. If you would like to read some more of them, drop Hank G. Spindle a line in care of COTTON.

ONE night recently the door bell rang, and going to answer the alarm and report the cause, I was delighted to find the visitor none other than my friend, Hank G. Spindle, Superintendent, come down for a little after-supper chat.

Conversation drifting from one thing to another, we lighted up a couple of cigars friends had given us during the day. Now far be it from Hank and me to criticize our friends, but after a few draws on these cigars we'll confess we had some pretty harsh thoughts for them; the cabbage and collard crop in America must certainly have found a new market.

After we had finished up the weather as a topic of conversation Hank inquired, "Well, has your last copy of COTTON come yet, and what did you think about it anyway? You know, to my mind it was filled with the most valuable information and interesting reading matter that it has ever contained in a single issue. It was a surprise to me that my observations were printed; not that the information was not worth publishing, but because of the style in which it was written."

Spinning Frame Traverses.

"It was a hard job, Hank, for the editor to prepare your observations," I said. "Listen at what he wrote to me—'I have just finished preparing Hank for publication, and this is an appropriate time, before doing some calisthenics . . . ' I looked up the word 'calisthenics' in the dictionary, and according to Webster it means 'exercise to give strength and grace,' so it must have been quite a job to edit if it made him want to do anything like that."

"Well," said Hank, getting away from that subject, "I notice there is some discussion about the proper way to run a traverse on a spinning frame. Now it so happens that in one of the mills I look after we have a 7-inch traverse where we run 36s to 50s. Here we let the ring rail move up slowly and come down fast. So, since this is combed yarn, and since the spinning runs as nearly perfect as seems possible, I believe that in the coarse counts, on combed yarn anyway, it doesn't make much difference whether the traverse moves down slowly or up slowly.

"But in another mill we are spinning 100s, and there we find quite an advantage in running the traverse fast on the upward motion and down slowly. The upward stroke takes only 10 seconds, while the time of the downward stroke is nearly a minute. We use a ring 1 7/16-inch in diameter with a round point traveler, operating with a pretty high spindle speed.

"In making the change we tested the frames out for end breaks, and found, the length of the traverse being 5 inches, that there were less breaks in the yarn spun on the frames where the down stroke was slow and the upstroke fast. So my experience has been that in fine counts best results are obtained by running the spinning frame with a fast motion up on the traverse, but with a slow down-stroke. I might add that this yarn is spun filling wind."

"By the way, Hank," said I, "have you seen the new flyer for roving frames? It is so constructed as to prevent the flying out of the roving, and to stop the roving from tangling around the fingers of the flyer when doffing."

"Why, yes," said Hank. "It was invented, you know, by a superintendent in North Carolina, and I am testing out a frame of them for him now. They are a great improvement over the regular flyers; for one thing, when a cone belt breaks every end remains threaded in the flyer, and hence can be quickly put up again. The nice thing about them is that they can be installed on the flyers you are using now.

"They claim, and my experience bears it out, that less twist is needed in the roving, better breaking strength is obtained in the yarn, and, since less twist is required and the frames may be doffed twice as quickly, increased production is secured.

"No, I have no financial interest in the appliance, but I believe that it will prove one of the best small inventions of the past few years.

"And another thing; this business of making yarn is always changing. For example, a number of the dyers who have been dyeing yarns in the skein have changed over to the use of a specially made perforated tube for dyeing the yarn. You can see that this would be a big saving to the dyer, for where he

(*Continued on page* 1208.)

Human Relations *are* Stressed *at* Southern Textile Convention

Brown Elected President; Marchant Addresses Meeting

HUMAN RELATIONSHIPS, particularly between operating executives and operatives in the mill, formed the keynote of the Southern Textile Association's annual convention at the Kenilworth Inn in Asheville on July 5th and 6th. The addresses and impromptu talks delivered at the meeting centered effectively around this theme, which was particularly appropriate due to conditions prevailing in parts of the industry. The general impression developed by the course of the various discussions and the interest displayed indicated an entirely wholesome and progressive attitude on the part of the operating executives concerning these relationships.

Left, L. L. Brown, of Malvern, Arkansas, who was elected president succeeding Carl R. Harris, right, of Cooleemee, N. C.

Mill superintendents, overseers, and other operating executives of southern cotton mills, together with representatives of allied concerns, comprised the attendance at the convention, which was encouragingly large. In addition to the sessions on Friday and Saturday mornings, a banquet on Friday evening and a golf tournament and other forms of entertainment in the afternoon rounded out a program of great value and pleasure for those attending.

L. L. Brown, now superintendent of the new weaving mill of the International Shoe Company at Malvern, Ark., was elected president of the Association, succeeding Carl R. Harris, superintendent of the Erwin Cotton Mill Co. plant at Cooleemee, N. C. Prior to going to Arkansas, Mr. Brown was general superintendent of the Clifton (S. C.) Mfg. Company, and for several years was actively chairman of the Association's weaving division. Other officers named were: J. O. Corn, superintendent, Pacific Mills, Columbia, S. C., as vice-president; and T. W. Mullen, superintendent, Rosemary (N. C.) Mfg. Co., as chairman of the board of governors. F. Gordon Cobb was re-elected as executive secretary. W. P. Leister, of Walhalla, S. C., and J. Coleman Montjoy, superintendent, Steele's Mill, Rockingham, N. C., were made members of the board, and W. W. Arnold, Jr., agent, Brookside Mills, Knoxville, Tenn., and Oliver G. Murphy (since deceased), superintendent, Shawmut Mill, Shawmut, Ala., were re-elected as members.

The outstanding features of the program were the address of President Carl R. Harris, and the talk of T. M. Marchant, president of the Victor-Monaghan Company, Greenville, S. C., and president of the Cotton Manufacturers Association of South Carolina, at the banquet on Friday evening. The delegates were treated to an interesting discussion of the "Red" or Communist element in labor organization by Colonel Seymore Bullock, of South Bend, Indiana, on Friday morning, and by a studied discussion of human relationships by Rev. N. C. Duncan, of Cooleemee, N. C., an Episcopal minister who has spent many years in pastorates in mill villages. The Association was honored by the presence of representatives from the American Cotton Manufacturers Association: Arthur M. Dixon, of Gastonia, president of that organization, who is a former president of the Southern Textile Association; and W. M. McLaurine, secretary of the American Association, who gave his listeners some homely and timely philosophy to use in their relationships with their employees.

Friday morning President Harris opened the convention, the address of welcome coming from Captain Bartlett, Commissioner of Public Safety of Asheville. H. Gilmer Winget, of Gastonia, a regular contributor to COTTON, replied in his characteristically humorous and entertaining manner.

The next feature was the annual address of President Carl R. Harris, who selected a most pertinent topic for discussion and handled it in a fearless and con-

Left to right: W. C. Hames, E. H. Best & Co.; J. E. Thompson; T. M. McNeill, supt., Monarch Mills; Max Einstein, Standard Chemical Products; John C. Cook, business manager, COTTON; Louis P. Batson, Shambow Shuttle Co.; Carl R. Harris, Erwin Cotton Mills, Forrest B. Gardner, Saco-Lowell Shops.

Left to right: L. L. Brown, the new president; Thomas Aspden, H. & B. American Machine Co.; T. W. Mullen, supt., Rosemary Mfg. Co.; J. M. Gregg, Stafford Co.; Charles Warren, Draper Corp.; H. E. Runge, supt, Grendel Mill; Frank G. North, Atlanta Harness & Reed Mfg. Co.

vincing manner. His remarks pertained mainly to the necessity for change being made in manufacturing methods—by whatever name it might be called—and are reproduced in large part as follows:

Address of President Carl R. Harris

"My predecessor of last year, Mr. L. R. Gilbert, sounded a warning that evil forces were at work among us. I know that we underestimated the serious intent of this warning, and felt that it was prompted during a pessimistic moment. You have seen the fruits of this work ripen into materialization in different localities during the past year, bringing with it strife, discord, and even blood-shed.

"Unless something can soon be done to show our people that they are following false leaders, it is destined to disrupt seriously the sincere spirit of brotherly love which for so long has been a bond between employer and employee in our southern mills. We should make every effort in our power to heal the breach which has been brought about by these foreign agitators, as it is sure to lead to serious consequences and extreme suffering for our people if they follow them.

"I must say that so long as we give our people the consideration due them, and strive to better their conditions in every way that good judgment will allow, I do not believe that they will follow far leaders that have no other interest in their welfare than to stir their emotions enough to camouflage their real motive, which is to extract a comfortable living for themselves without having to work for it.

"I can't help but believe that they will soon realize that any system which fails to put a premium on work, ability and merit will work to their disadvantage. Under our present industrial system, every individual regardless of what he may be doing has the opportunity of climbing to the top in his profession. Whereas, if the principles that some are advocating were in practice this would not be possible. When the incentive to do better is taken away from any human being the most valuable part of life has been destroyed. This is something that we should always keep in mind in our dealings with our fellow man.

"It is difficult for our people to realize that the mills are passing through the most strenuous and trying period that they have ever faced and are today struggling for existence, when all about us our other major industries seem to be flourishing and the country as a whole has for the past seven years been enjoying unprecedented prosperity.

"It is not my intention or duty to discuss the cause or remedy for the condition that we are facing, except as it applies to the manufacturing end of the business.

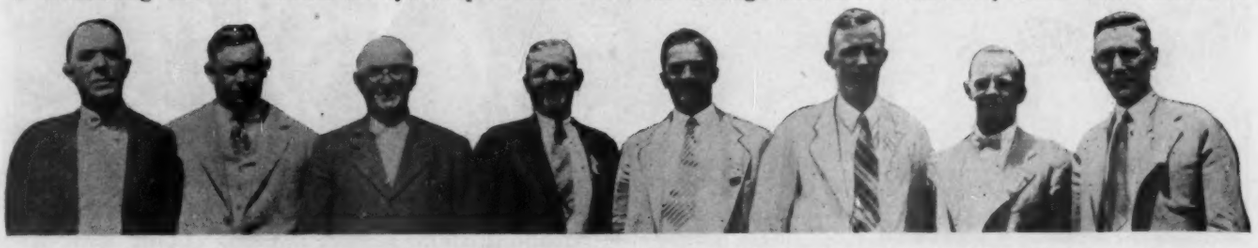
"Our executives have all agreed that the cause is overproduction, brought about by various causes. Some of which can and will be remedied by them in due course of time by proper cooperation. There are some which must be met by us operating executives.

"Today as never before we are feeling the effects of keen competition in foreign markets. In 1915 China had 31 cotton mills with a total of 1,008,986 spindles and 4,564 looms. They have expanded until in 1928 they had 129 mills with 3,638,098 spindles and 29,788 looms. Extremely low wages with other favorable conditions have allowed the Chinese mills to show large profits, especially during 1928, while most of our mills did not make any money. We may expect a continued expansion of the mills in China and other countries, which will in turn add to the competition to be met. We can meet our part of this in two ways.

"First, by producing goods of superior quality. This should be an easy matter with our educated and highly skilled southern born people to man the operations.

"Second, we must find ways and means of lowering our manufacturing costs. This is the difficult task that must be accomplished and at the same time not only retain, but raise the standard of living of the people.

"Our mill owners of the South have expended large sums of money to see that their employees were given the opportunity to secure education and other advantages. During the past year a Methodist minister in an average size mill community made this remark to



Left to right: C. H. Lockman, supt., Henrietta Mills; H. E. Littlejohn, Steel Heddle Mfg. Co.; John S. Lockman, Lockhart Mills; J. G. Shaeffer, J. B. Ford Co.; W. H. Gibson, Jr., supt., Aileen Mills; J. A. Chapman, Jr., vice-pres., Inman Mills; Marion T. Grimes, supt., Chicopee Mfg. Corp.; John L. Graves, Saco-Lowell Shops.

Left to right: Marshall Dilling, supt., A. M. Smyre Mfg. Co., Davis L. Batson, Shambow Shuttle Co.; C. B. Seal, Philadelphia Felt Co.; Sam Rakestraw, Seydel-Woolley Co.; Dick Osteen, Southern Tex. Specialty Co.; Lloyd Haskins, Akron Belting Co.; J. B. Harris, vice-pres., Greenwood Cotton Mills; E. A. Franks, supt., Duncan Mills; Stanley W. Converse, supt., Clifton Mfg. Co.

me: 'I have had churches in some of our larger cities, but I am preaching to more college graduates here than I have ever preached to before.' It will be entirely unfair and cowardly if we do not make every effort to solve our problems in such a way as to help them retain these advantages.

"Most of our mills are operating fairly efficiently and at a fair cost considering the methods. To lower our cost to any appreciable extent it is going to be necessary for us to work out and adopt newer methods of operating.

"First, we must take advantage of every modern improvement in machinery that will enable us to produce more pounds of goods per operative.

"Second, we as operating men must see that our machinery is kept in the best possible condition, so that it will produce a quality product with a minimum amount of effort by the operative.

"Third, after this is accomplished we may then by applying sound reasoning and practical facts, turn our efforts to the main task of educating and training our people to take advantage of the improved conditions. You may call this whatever you like—extended labor organization, placing skilled operatives to doing only skilled work, etc.—the results are the same.

"In view of the fact that disturbances have been brought about recently on account of these economic changes, you may feel that the least said at this time the better. I assure you that I would not have mentioned it were I not firmly convinced that we may expect nothing short of distressing conditions, unless we reorganize and class our work according to the degree of skill required for each operation. All the major industries that are making a success and giving profitable employment to their people have adopted this plan of specialized work.

"We are more or less creatures of habit and to change our habits of long standing, is equivalent to starting life over again. To do this is no small task and with us rests the burden of showing the people that to change is not only for their best interests, but also for the mutual advantage of themselves and for the company for which they are working.

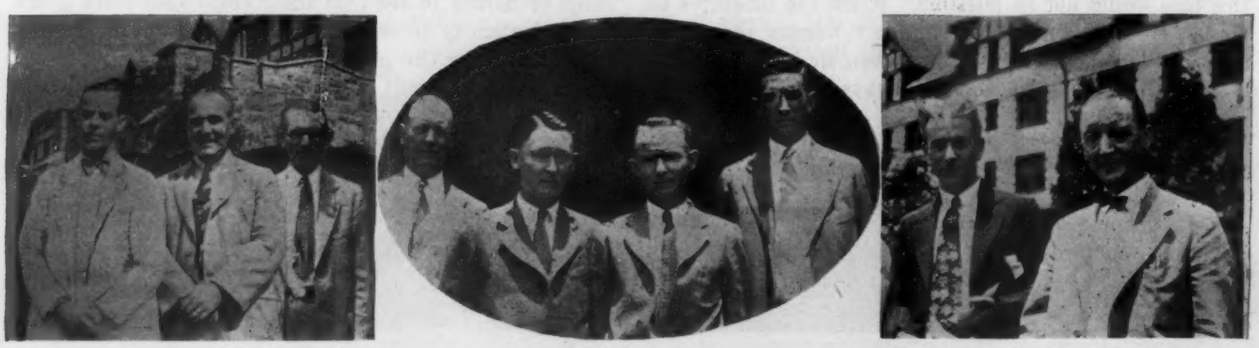
"As a basis of agreement in a South Carolina mill recently, both officials and operatives concluded that 'the fundamental principles of extended labor are correct when properly applied.'

"I am firmly convinced that if worked out in an equitable manner, our people will soon realize that it is a necessary step and is going to materially aid them in their quest for happiness and increased living comforts.

"I am very much afraid that in some cases efforts to change our methods of operating have been made without the proper preparation. I wish to warn you that the basic principles which have been in use for some time in any industry, can not be changed without working a hardship upon the people unless proper adjustments are first made to meet the new condition. It is our duty in working out the economic change that we must of necessity go through, to see that it is done in such a way as not to place a burden upon the operative.

"There must exist a strong bond of confidence before our problems can be solved to best advantage. In us is vested the leadership which will either create or destroy confidence and I wish to urge that we take stock of ourselves and see if we are living up to our trust.

"It is not to be supposed that any system which is to yield maximum results to employee and employer alike, can be installed without some inconvenience to both. No nation or people have ever improved their social conditions without effort upon their part and



Left to right: D. S. Cook, agent, Pepperell Mfg. Co.; I. E. Wynne, Universal Winding Co.; L. E. Wooten, Lestershire Spool & Mfg. Co.; W. F. Gaston, W. W. Splawn, W. M. Kirby and C. C. Roberts, all of Watts Mills, Laurens, S. C.; W. L. Phillips, supt., Strowd-Holcombe Textile Mills; Fred Dickinson, H. & B. American Machine Co.

if our people are to gain the compensations which are within their reach, they must be willing to cooperate in a wholehearted way with the efforts which are being made to meet existing conditions. It is not necessary that more work be put upon them to accomplish results. In fact, the work should and will be more pleasant after they become accustomed to the change.

"No longer ago than yesterday I heard a president of a mill make the remark that in two years the mills which did not have in operation the extended labor organization, would be having strikes for it.

"We are all more or less inclined to be as the little world, which continued to protest that Fulton could not build a steam boat, while the big world flocked to river banks to see his boat steam by. For the good of us all, I wish to take one quotation from Spencer: 'There is a principle which is a bar against all argument, and which cannot fail to keep a man in everlasting ignorance. That principle is condemnation before investigation.'

"Our industry has attained its potent place through harmony, confidence, mutual understanding and good will, and if we leave anything undone which will help to preserve these fundamentals which are so necessary to the future good of both employer and employee, we are betraying our trust to both."

Colonel C. Seymour Bullock, of South Bend, Indiana, spoke next, devoting his remarks mainly to descriptions of the various members of the Communist party in this country who had connection with recent

Left to right: E. B. Brannan, J. T. Phillips, and William Holt.

labor disturbances in the Carolinas. He traced the record of each, and used documents as a basis of establishing a definite relation between these workers and the Third Internationale or communist movement in Russia. W. M. McLaurine, later in the meeting, stated to members that he had been asked to announce that Colonel Bullock would be glad to visit any mill community; that applications for his services should be addressed to David Clark, *Southern Textile Bulletin*, Charlotte, N. C.

The concluding speaker of the morning was Rev. N. C. Duncan, of Cooleemee, N. C., who discussed "Human Relationships in Industry," saying in part:

"In my own experience I have seeen many things in the industrial fields which were deplorable, and intolerable for a Christian community. I have seen suffering, need, hungry children, ragged children, underpaid and overworked people. Yet these conditions were not always caused by the particular industry, and were beyond the control of the owners. They were a part of the general poverty and misery of the world. Other lines of work commit greater sins against humans than the cotton mill. In most cases the people in the cotton mills have had their conditions bettered. In few instances do we find them worse off, while the general rule is improvement. Wages have been increased, living conditions improved, opportunities for education and self-improvement have been multiplied, and the social and economic status of the workers greatly changed for the better. I do not mean to say that conditions are ideal; there is much to be done.

"I have already stated that employer and employee

Dr. Marjorie Potwin, of Saxon Mills, had such a good time at the meeting last year that she returned, bringing a large Saxon delegation. She is shown here with W. M. McLaurine.

are both human. I have approached mill owners for help in improving conditions, and I have approached individuals and families among the workers for efforts in this same direction. In fairness I should say that I have found it a bit easier to secure help from the owners; most of whom are anxious to do something, but are too much in the grasp of the machine to discover what it is that they can do."

Rev. Duncan then offered two principles which he recommended to the operating executives, declaring they could apply spirituality in their contacts by:

"1. Accepting the principle of brotherhood. Look upon all men as brothers, and treat every man as a human, not as a part of a machine, and respect his personality. You cannot treat a man as a machine without injury both to him and to yourself. His nature, his needs, his aspirations, must form the primary basis in your dealings with him.

"2. Labor and capital must see together a common purpose in industry, and realize that they are partners in a great enterprise, which has higher aims than that of making money."

After Rev. Duncan's remarks, the morning session was adjourned.

The general theme of human relationships was continued at the annual banquet held on Friday evening. T. M. Marchant, of Greenville, president of the Cotton Manufacturers' Association of South Carolina, and head of the Victor-Monaghan group of mills,

(*Continued on page* 1179.)

Dyeing Rayon *in* Skeins

By M. E. Dodd

IN this article the author describes an actual experience in the machine dyeing of rayon in skeins. He tells the story of rayon's progress by describing the development that has taken place in methods of handling. It is a far cry from the pioneer experiences of a half a decade ago to the up-to-date methods and equipment upon which this article is based.

BEFORE getting into the dyeing of rayon skeins, it might be well to recall a little of the recent history of the handling of this yarn in southern plants.

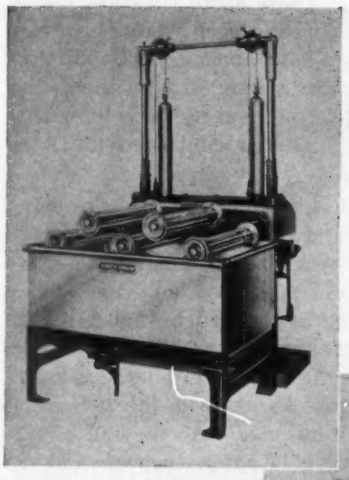
Along about 1919 or 1920 a few mills in the South were knitting a comparatively new yarn that was generally known as art silk, or artificial silk. Practically all knitters are now familiar with this yarn, and with the best methods of preparing, knitting, and finishing it. But the pioneers and even some of the more recent users of it in the knitting trade were faced with problems, the solving of which cost a good deal of money and a great deal of mental anguish.

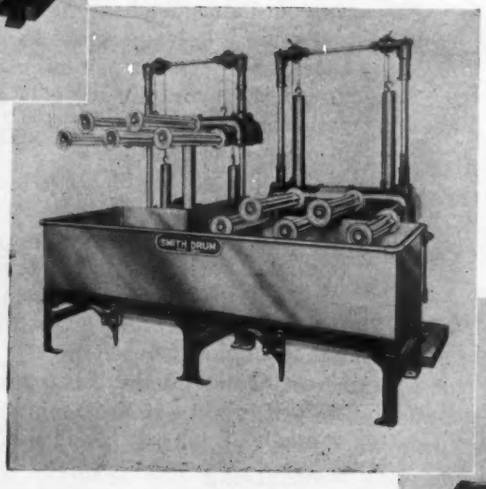
For example, they found that the yarn as received from the manufacturers was difficult to wind from the skeins to a cone or a bottle bobbin for use on the knitting machines. If they did get a good package, they found that the yarn was harsh or stiff or fuzzy, so that it gave no end of trouble on the knitting machines.

The first efforts to overcome this condition consisted of hanging the undyed skeins on a rod, and spraying them by hand with some very light oil. This helped, naturally, and was used by numbers of mills. However, it still was not entirely satisfactory, both from a standpoint of results, and from the amount of labor necessary to properly spray any considerable amount of yarn.

The next development, and one which was kept secret as long as possible, consisted of preparing a bath of oil, usually about 75 per cent kerosene and 25 per cent olive oil, and in soaking the skeins in this bath for several hours. The skeins were made up in bundles of about five pounds each, wrapped in cloth or placed in cloth bags, and then immersed in the tank of oil. After soaking, they were extracted in a regular extractor, the extracted oil caught and returned to the tank, and the skeins opened up and placed on the winders where the yarn wound well, and later knitted well. Practically no attempt was made by knitters to dye the rayon skeins, as all the dyeing was done "in the piece," or after the stockings were knit. This still

"When in the raised position (at the left) the reels do not revolve, and it is in this position that they are loaded or unloaded. When the heads are lowered, the gears engage with a worm on the driving shaft end, the reels all begin revolving, and continue to do so until the head is again raised by the operator.





These views show a five-reel, a ten-reel, and a fifteen-reel machine for dyeing rayon skeins. The reels in each section turn together, treating each batch in the same manner, the article points out.

holds good for a number of mills, but there are other knitters making fancy hose, and this requires that dyed yarn of various colors be knit into the goods.

The greatest bulk of dyed rayon, however, is now being used by the weaving mills, and they are the ones who are most concerned with this phase of the problem. Apparently the average weave mill dyehouse is finding it a rather stiff problem at that. Almost without exception, these mills began doing their dyeing by hand. "Hand poling" most of them call it, and taking the field generally, they are doing "as well as could be expected." The results from a standpoint of level dyeing are fairly satisfactory—providing they don't attempt to dye more than 50 to 75 pounds per batch, and also providing they don't attempt sulphur colors and vat colors. I don't mean by this that larger lots can't be dyed satisfactorily or that good results can't be obtained with sulphur and vat colors, but I do mean that large lots and these two types of colors offer many more difficulties than direct colors and small lots.

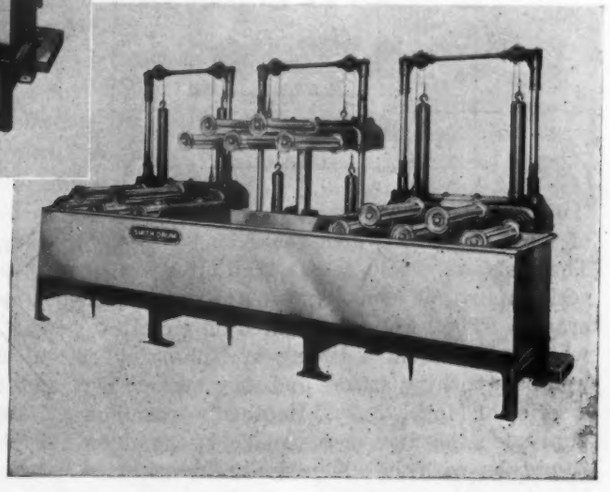
In order to make these points clear, it is necessary to get the details of the hand-dyeing method clearly in mind. Let us assume that we want to dye 50-pound lots of rayon with direct colors. We first get a Monel tank or a wood tank lined with Monel. This tank will be about six feet long, about 30 inches deep, and about 30 to 36 inches wide. In the bottom will be perforated brass or Monel steam pipes for heating the bath. A drain plug is also provided; the water inlet pipe usually projects over the top edge of the tank.

The tank is filled to the proper depth with water, the previously dissolved dye is added, about two per cent to four per cent of a good soluble oil stirred in, and the bath brought up to about 110 degrees Fahr.

The rayon skeins which have been threaded on two smooth rods, about five pounds to each pair of rods, are now entered in the dyebath. Two men, one on each side of the tank, swing the skeins through the bath; turning them so as to get all parts into contact with the bath before laying this batch down and picking up the next.

Each "stick" of yarn is in turn handled in the same manner, over and over again, until the yarn is up to shade. This may take anywhere from 40 minutes to several hours, depending on the depth of shade, and on whether or not the dyestuff formula has been properly made up to give the desired color match.

The difficulty of getting off good work by such methods is easily understood when it is realized that theoretically and in most cases practically, it is beyond human ability for two men to handle every "stick" of yarn and every batch of yarn in identically the same manner. The results of non-uniform handling are more easily apparent when inferior colors are used, or when vat or sulphur colors are used. Both of the latter dyestuffs are sensitive to the



action of the atmosphere. As a matter of fact, they depend on atmospheric oxygen for their final development, and as such could very nearly be called "air colors" rather than vat colors.

Now if the operatives on the hand tub attempt to dye too large an amount of yarn, or if they expose some of the skeins to the air longer than they do others, there are very likely to be several different depths of shade in each batch. Naturally this condition is exaggerated when large lots are attempted, as it takes the men just so much longer to work from one end of the tub to the other and back again.

In dyeing vat colors, it is desirable to have the dye sticks bent as shown by the sketch in Fig. 1, so as to allow the skeins to lie completely submerged when they are not being worked by the men, and even then the results are almost wholly dependent on the human element. The most unusual feature about such work isn't that "off" shades are obtained fairly often, but that any good lots can be gotten off at all. However, vast quantities of rayon have been, and still are dyed by such methods.

There have been numerous machines offered during the past few years, which many of the machinery

manufacturers thought could be used for dyeing rayon. These machines dyed pure silk in a satisfactory manner, and no doubt the manufacturers could see no reason why they should not also handle rayon. They therefore must have offered them indiscriminately, with the result that many dyers came to the belief that machine dyeing of rayon skeins was impossible.

However, I have recently had installed what to me is a new type of dyeing machine, and judging by the results obtained from it, what I believe will be a most interesting piece of equipment. I will attempt to describe the machine and its operation in as much detail as possible.

To begin with, the machine we have is so designed that it can be added to or extended at will, as production requirements increase. It is essentially a series of glass reels, on which the skeins are loosely hung. The reels are revolved by a train of gears, so that all reels in any one compartment are in simultaneous operation. The reels are mounted on a crank-type shaft which gives them a lifting and plunging action, as well as a turning action, and they operate over and in a series of Monel tanks. In other words, it practically duplicates the movements made by hand on our old hand tubs, with the advantage that all skeins are turning at one time, and that each different batch is treated in exactly the same manner.

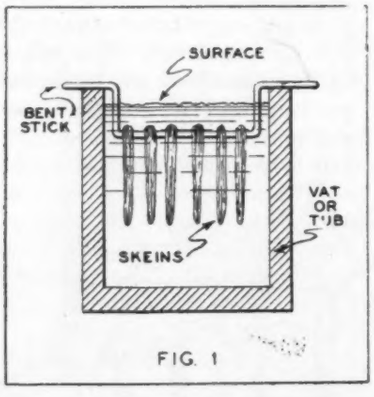


FIG. 1

These reels are mounted in cast iron "heads" or sections, and each section is in effect a separate dyeing machine. As stated before, additional sections can be added at will, and each section is raised or lowered by means of a hydraulic ram. When in the raised position, the reels do not revolve, and it is in this position that they are loaded or unloaded. When the heads are lowered, the gears engage with a worm on the driving shaft end, the reels all begin revolving, and continue to do so until the head is again raised by the operator. The hydraulic pressure is obtained and maintained by means of an automatic motor driven pump, and an accumulator, and to lift or lower any section, it is only necessary for the dyer to raise or lower a valve lever.

The Dyeing Operation.

We get ready to dye, by opening up the skeins of white rayon as we formerly did for the old hand tubs. To facilitate this, we have fastened a piece of three-inch brass pipe to a column of the dyehouse in a horizontal position (See Fig. 2). The bundles of skeins are made up of parcels. These small rolls are placed on the pipe, shaken gently, and each skein separated and opened up. When we have about five pounds thus opened, we slide two rubber sticks through them, and transfer the whole load to one reel of the dyeing machine in one operation. This is continued until the entire machine is loaded.

While loading the reels, the Monel tanks are being filled with plain water, and this water is being heated up for the wetting out process. When the tanks are filled, we add two per cent of a good sulphonated castor oil. The reel section is lowered by means of its valve, and the skeins all begin to revolve in the wetting out bath. We heat the bath to 110 degrees Fahr., and after this temperature is attained, the skeins are allowed to work for five minutes. At the end of this period the hydraulic valve is again thrown, and the reels are raised clear of the bath, which is then ready to receive the dyestuff.

The dyestuff, which has been previously dissolved by boiling in a bucket, is added and thoroughly stirred in. The skeins are then lowered into operating position and allowed to work in the cold bath for five minutes, when we open the steam valves so as to bring the bath temperature up to 160 degrees Fahr. in 15 minutes.

At this point the valves are closed and the skeins allowed to work 15 to 20 minutes, when they are lifted and half of our salt is added and stirred in well. The skeins are lowered, allowed to work for ten minutes, and again raised, when the other portion of salt is added. We now run for about ten minutes longer and sample.

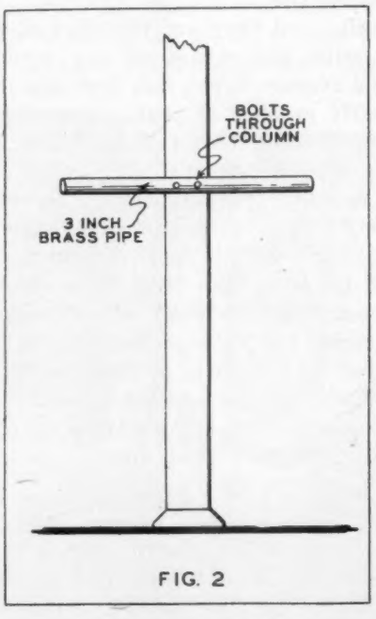


FIG. 2

We did not arrive at this method overnight, but through rather long and expensive experience on our old hand tubs. It was changed slightly to suit the new machine, and works with such entire satisfaction that we have never been interested in the so called shorter and simpler methods recommended by some of our

(Continued on page 1221.)

PUTTING the TEXTILE HOUSE in ORDER

By Michael Welsh

Article II

THIS is the second article of a series that is being written to discuss certain features of the southern textile industry which are essential in its profitable operation.

The first article, published last month, covered the possibilities offered by newer methods of manufacturing for reducing unit cost and at the same time increasing the wage scale. This month the author, who is an active mill man, goes into the matter of human relationships between mill management and employees, emphasizing the importance of a closer understanding to offset the effects of various disturbing conditions which have arisen within and from without the industry. The third article will appear in an early number.

RECOGNITION of the necessity of modernization within southern cotton mills in order to cope with a more complicated economic situation is futile unless this knowledge is supplemented by an intimate understanding of the personnel of the industries.

Probably the most favorable individual factors in southern textile development have been the splendid labor available to the mills and the unparalleled associations and contacts between the owners and their employees. Southern cotton mills have had but little industrial strife, and there is no doubt but that this condition has resulted from a desire on the part of the owners and managers always to deal fairly with their operatives. They have consequently enjoyed the loyalty and cooperation of their operating forces and have been able to run their plants undisturbed by imminent strikes and internal turmoil.

Relationship Never Understood by Outsiders.

This southern industrial relationship has never been understood by outsiders. The fact that the owners and their operatives have been able to work together in harmonious accord has so grievously puzzled some individuals and organizations that they have tried to establish all kinds of mythical theories and complexes with the hope that they might give light to malfeasance on the part of the owners. These attempts to disturb the very foundation of the southern textile structure have met with little success, and there is no likelihood that they will fare better in the future provided the southern owners and managers continue to exercise that same good judgment in dealing with their employees.

It is very important just at this time that extreme caution be exercised in making whatever adjustments as are being contemplated. In the preceding article in this series, the extended labor system was discussed. This step in the average mill would mean a radical departure from the established customs.

If an attempt is made to modify the plant operation without the cooperation of the employees, trouble can be expected, for even if the operatives should accept the changes without manifestations, the systems would not be given a fair trial. There is a serious danger in soliciting the aid of outsiders in modernizing a plant, particularly if they do not possess a thorough understanding of the southern mill labor and a comprehensive knowledge of the history of the industry. This has already been the pitfall of a few plants. The managements will probably have to retract and start again on a basis in conformity with their past policies. There is much that can be learned from cotton mills in other sections and valuable information that can be secured from other industries, but the methods used in introducing them into the southern mill will determine whether or not they will prove beneficial, and it might be well to state again—*mutually* beneficial.

Efficiency Organizations.

Many efficiency organizations have sprung up in the past few years and quite a few appear to be specializing in textile problems. This is chiefly due to the fact that the textile industry is sorely in need of improved methods of operation and modern equipment. Many of the principles of efficiency as advocated by these "mill doctors" are good and should prove of inestimable value, provided tact and caution is used in promoting them. Past experiences, however, have given evidence that mills can not rely upon the efficiency experts alone. It will prove to be a far better plan to ascertain from the efficiency service organizations and other sources such information as is needed and use local talent for the application.

In every organization can be found employees who

possess the ability and the confidence of both the owners and their fellow workers and who could successfully perform the tasks necessary in inaugurating the new systems. It is hardly necessary to mention the advantages of recognizing ability and merit within a plant, or the healthy reaction of people toward changes which they sympathetically understand.

The Problem of Management.

The big problem facing southern mill management is to preserve domestic tranquility, and at the same time modernize their plants so they can be profitably operated. This can be accomplished by continuing the past policies of dealing fairly with the employees and by exercising tact and caution with every step that is made. They should ever be mindful of the fact that upon mutual understanding, approval and cooperation, the ultimate success of a plant is dependent. That knowledge assuredly constitutes a part of good management.

Offsetting the Disadvantage of Absentee Ownership.

Since the influx of northern capital in the South, absentee ownership is more prevalent; hence, a close association between the ownership and the operating force of a plant is often lacking, but this disadvantage can be greatly offset by the presence of operating executives (from the general manager on down to the section men) who are not only capable, but are also sympathetically familiar with the employees. A later article in the series will deal with this subject.

The greatest calamity that could possibly befall the South would be the destruction of the industrial tranquility which has stood out unequalled in the history of industry.

Standard Test Method for Tire Cord

SEVERAL months ago an independent committee consisting of members from several of the leading tire manufacturers and tire fabric manufacturers was formed for the purpose of developing standard methods of test for tire cord. The standards of Committee D-13 of The American Society for Testing Materials were used as a background, but several changes and refinements, necessary to bring the methods to a point where they could be universally used, have been made by this committee.

As a result of several months' work, investigation and research, this committee recently formally adopted the standard methods of test for tire cord which are published below, and will put them into effect in the near future.

STANDARD METHODS OF TEST FOR TIRE CORD AS ADOPTED BY STANDARDIZATION COMMITTEE OF TIRE AND FABRIC MANUFACTURERS, JUNE 7, 1929.

I—TENSILE STRENGTH.

(a) Condition—Condition to 6½% Moisture Regain standard. Corrections to be made between the limits of 5½% to 7% by the following formula which allows 3½% increase or decrease in strength for each 1% variation from standard regain.

Tensile strength corrected to 6½% moisture regain $= \frac{\text{Actual tensile strength} \times 122.75}{100 + (3.5 \times \text{actual percentage regain})}$

Example:—A cord having a tensile strength of 17 lbs., with 6% moisture regain would have a corrected strength at 6½% moisture regain of 17.24 lbs.

(b) **TYPE-JAW**—Cam Clamp jaws.
(c) **Distance Between Jaws**—10" between nips measured along the line of cord.
(d) **Speed Pulling Jaw**—12" per minute.
(e) **Where Read**—On dial to maximum point.
(f) **Capacity Machine**—50 pound.

II—ELONGATION OR STRETCH.

(a) Condition—Condition to 6½% Moisture regain standard. Corrections to be made between the limits of 5½% to 7% by allowing 1% increase or decrease in actual stretch for each 1% variation from standard regain.

Example:—A cord having 15% stretch with 6% moisture regain would have a corrected stretch at 6½% moisture regain of 15½%.

(b) Type-Jaw, Distance between Jaws, Speed Pulling Jaw, same as under tensile strength.
(c) **Where Read**—Start with 10 lb. load.
(d) **How Read**—Chart from recorder.
(e) **Tension Weight**—4 ounces.

III—GAUGE.

	First Method	Second Method
(a) **No. Cords for test**	4	6
(b) **Size Presser Foot**	3/8"	3/4"
(c) **Pressure Applied***	4 oz.	7 oz.

*Note:—Pressure to be equivalent to that obtained by dropping a dead weight ¼" in vertical position.

IV—TWIST.

(a) **Cable Twist**—Twist taken in 10" cord.
(b) Ply Twist—To be the actual twist as put in on ply twisters called manufacturing twist. After taking cable twist, cut out all but one ply and divide twist by contracted length.
(c) **Tension Weight**—2.5 ounces for cable or ply.

It will be noted that the conditioned method of test is called for and corrections provided for both tensile strength and elongation to a standard moisture regain of 6½ per cent. These correction formulas differ radically from anything heretofore used in the trade, as in the past all such corrections have been based on formulas developed for square woven tire fabric. It has been found that in tire cord, according to the committee, there is an increase in tensile strength of 3½ per cent for each per cent of moisture between the limits of 5½ to 7 per cent regain instead of 6 per cent as has been commonly used.

The present personnel of the committee, in addition to K. B. Cook, the chairman, is as follows:

S. A. Steere, Goodyear Tire & Rubber Company; H. C. Hebden, B. F. Goodrich Company; W. A. Karl, Firestone Tire and Rubber Company; M. Castricum, Fisk Rubber Company; W. R. Marsden, Kelly-Springfield Tire Company; C. G. Miller, Ajax Rubber Company; F. Kovacs, Seiberling Rubber Company; B. H. Foster, United States Rubber Company; R. H. Adams, Callaway Mills, Incorporated; C. B. Finckel, J. H. Lane & Company; L. A. Graybill, Bibb Mfg. Company; and A. E. Jury, Winnsboro Mills.

CURRENT TOPICS

Mill Unity in Diversity

AMONG the suggestions arising recently because of gloomy reports still raging around the textile industries is one that a Moses or a Judge Gary is needed to lead them out of the wilderness, or the slough of depression. This suggestion, as to Judge Gary, presupposes a similarity between the textile industries and the steel manufacturing business. It overlooks the contrast of great diversity and comparative uniformity in production. It overlooks what is a concomitant of that contrast: the lack of a dominating human force within the one industry and the presence of such a personality in the other.

On the other hand, the lack of cooperation among a great number of individual managements absolute unto themselves is cited as a curse of the textile industry. And so it has been. But the transition from an industry of individual units following their own sweet ways to combined groups of dominating scope (if ever possible) is not something which can be compassed in a short time and, is therefore, a remote hope as a remedy for the current unsatisfactory condition.

The progress toward mergers, which have been advocated as the means toward amelioration of textile conditions, is slow, albeit signs are given of some advance.

If mergers develop in the cotton industry, moreover, it probably will be found that no single unit will be able to exert a controlling force on the whole manufacturing business any more than that of the American Woolen Company in its field. The fact that the woolen industry is struggling against similar adversities as those encountered by cotton manufacturers demonstrates that the evils of the day are fundamental conditions which are not based upon size of producing units individually, but upon the strained relations of the aggregate supply to the common demand.

Thus it comes down to the point that, whether units are combined into companies of larger scope or remain individualistic, they must combine upon fundamentals as a complete unit to remedy the evils existing. Coercive measures are impossible, but cooperation is imperative. Lately it has been reported that a few of the manufacturers in the wool industry have definitely taken the position that they will discontinue competition for business that offers no chance for profit on a fair volume of production. Here is an example for all textile manufacturers to follow. Here is one unfailing source of relief. It may mean loss of some business, but no business is better than unprofitable business; in fact, it is the sure outcome in the long run.

Statistics have been published recently which show that this country today is still predominantly one of comparatively small manufacturing units, however great are some managing corporations. But the conditions of competition, industry against industry, have shown the individual managements that the way to success is through interchange of information and cooperation in their particular groups toward sound economic principles in which standing firmly for prices founded upon absolute figuring of costs is conspicuous. Textile men will not find the buyers of their products constantly dickering for lower prices and playing them one against another when they let it be known that, under no circumstances, will they sell except at some margin above the cost of production.

A dictator for an industry may be desirable, but why should not individual manufacturers retain their separate status, as the States maintain their sovereignty, and yet voluntarily collaborate in a national way for the control of fundamentals. In production, the industry is widely diversified; in methods, it is basically a unity. The former is an individual problem; the latter a common problem.

A New Member of the Family

KEEPING in step with progress, the W. R. C. Smith Publishing Company, publishers of COTTON and other business and technical journals, announce the establishment of a new monthly magazine, SOUTHERN AVIATION, covering all phases of southern aeronautical activity. The first issue will appear in September, 1929.

This new member brings the W. R. C. Smith family of business and technical papers to a total of six, the five others being COTTON, the manufacturing journal of the textile industry; SOUTHERN HARDWARE, reaching dealers and distributors of hardware and allied lines; SOUTHERN AUTOMOTIVE DEALER, covering sales and service of all automobile lines; ELECTRICAL SOUTH, published for electric power companies, contractors, dealers, etc.; and SOUTHERN POWER JOURNAL, covering the power plant field. The several publications of the Smith organization, which has been serving the rapidly developing industrial and commercial interests of the South for more than a quarter century, comprise the largest business paper publishing organization in the South.

SOUTHERN AVIATION is launched to assist in the development of, and speak authoritatively for, the aviation industry of the South, which might be termed the birthplace of aviation, for it was at Kitty Hawk, N. C., that the Wright brothers made the first flight in a heavier-than-air machine. The South unquestionably holds promise of the greatest future development of aviation, and SOUTHERN AVIATION will keep apace with that development. Editorial plans call for due attention to all phases of aeronautical activity, such as: the planning, construction and maintenance of airports and flying fields in the South; the development and operation of air transport lines, flying schools and commercial flying services; market development, and sales and distribution problems in the marketing of aircraft; parts and supplies; servicing and maintenance; "human interest" sketches, etc., etc.

A Suggestion to President Hoover

IN A BOOK on *"Who shall be Master—the United States or Europe?"* a French scholar by the name of Rommier asserts the novel view that this country is a real nation in the economic sense only, and declares that in this sense the United States is the prodigy of all time.

For the first time, a man skilled in both abstract and applied economics is the head of the nation. It is likely that his Administration will stand out most for the economic achievements sponsored and promoted by it.

Scarcely any other country is as rich as the United States in accumulated economic lore or has such vast number of men—and women—who are learned in academic economics and highly skilled in applied economics—and both. The economic expert has become, like the lawyer and the engineer, a necessary part of most large business organizations.

Academic economics, practicalized here probably as nowhere else in the world, has big place in American colleges and universities. Professors of economics teach series of laws that are held commonly by them to be as invincible veritably as the laws of physics.

How far are those economic laws so accepted by the public, even the business public? Not very far—with the exception probably of a few that have found place in everyday language, such as the law of supply and demand.

How far should they be accepted? Insofar as their validity is proved. This is of little help to the layman who knows little of the subject.

Why not a national commission, like the one set up by Herbert Hoover when Secretary of Commerce, to make a study of economic trends, for stating and clarifying economic laws, and perhaps authentic theories which may be on the way to becoming accepted laws?

What is in mind is the creation of media for bringing about a closer working relationship between economics as taught in the schools and that which must be practiced in daily life. It might be done in the way suggested.

A lot of loose thinking thus might be set straight and popular support gained for what in economics is proved to be sound.

For example, Gregory King, an Englishman, put forth, nearly five hundred years ago, a law of prices—it being that mathematical defects in supply have geometrical effect on prices. He held, for example, that a five per cent falling off or increase in the supply of a commodity would have something like a ten per cent effect on the level of prices commanded by the commodity. History tends to put Gregory King's among the invincible laws of economics. Yet it is so recognized scarcely at all outside of academic circles. If the law were made known generally and its validity attested, there would be less expression of wonder at such phenomena as big crops bringing less than small ones. The law, like many others, may not work justly—but if it is an invincible law why argue with it?

If it is an invincible law everybody should be made aware of it—and of other laws of like kind. Here's a chance, Mr. President, of your doing another big job!

No Left Turn on the Tariff---Yet

IT COMMONLY has been taken for granted that the American automobile industry, having a world supremacy, has been ready for several years to do a left turn on the tariff question. This belief was supported by the fact that it did not appear in tariff hearings at Washington until asked to do so. Many persons expected the industry's spokesmen to ask that tariff duties on motor cars be removed in order that the industry might be free to agitate for lower tariffs generally for the benefit of the foreign sales to which it may have to look in future for large expansion of operations.

The spokesmen, with the exception of that for the Ford Motor Company which, as far as 1909, advocated free trade in automobiles, still evinced a liking for protection, though admitting freely that, at present, they have no need of it. They asked that the duty on passenger cars be reduced from 25 to ten per cent and insisted that the present duty should be maintained on trucks and buses. They want the ten per cent duty, which they admitted they do not at present need, so that even the passenger car part of the industry still may be classed as a protected one. This would make it easier for a higher duty to be procured in case what they termed potential competition from Europe should become real.

This means a turning of so-called Big Business to the left, or towards free trade, on the tariff question has been a hope of anti-protectionists more than a real prospect. For the automotive industry is in better position than any other to lead in the making of the turn. Aside from Ford, for whom no decided view was expressed except as to his own affairs, it seems that the automotive folk are not inclined to do that.

The matter is complicated by the fact that several of the big motor car companies are expanding production operations abroad—as are units in a great many other manufacturing industries. In general these foreign operations are wholly for foreign markets and so far they do not appear as having changed the views on the tariff of many of the concerns that are thus becoming international. In some cases, the operation of foreign plants have intensified demand for tariff protection for domestic establishments. Usually in these cases the companies have transferred their export businesses to their foreign establishments and are abandoning all intent of exporting from the United States.

The tariff question has many more phases than is realized by persons who think of it in casual terms only.

Alizarin Fast Rubine R.

The Society of Chemical Industry is placing an acid alizarin dyestuff on the market known as Alizarin Fast RubineR, which distinguishes itself through its excellent wash, water, and alkali fastness. Because of its even dyeing, it may be used alone or as a shading off Dyestuff in the coloring of piece-goods and yarn, especially though for carpet yarn, it is stated. It is also adapted to the shading of Chrome colors due to its Chrome fastness. It draws neutrally on half-wool and does not color cotton and acetate silk effects. Ordinary and weighted silks are easily colored.

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What the Southern Mills are Doing

THE FIRST STEP of the expansion program of the Caroline Mills, Inc., Carrollton, Ga., was made when 1,200 additional spindles and 2,000 twister spindles were recently added to their equipment.

The Houston Cotton Mills Company, of Houston, Texas, recently took over the plant formerly operated by the Houston Cotton and Twine Mills, Houston, Texas. Sewing thread and window cords are now manufactured by this company. Allen Bath is president of the company.

The Long Fiber Textile Corporation, Vinton, a suburb of Roanoke, Va., state that they are producing a fiber which will successfully replace cotton, wool, and silk for many uses. The new material, which is being manufactured for the first time in the United States, is made of Chinese grass, and officials of this company state that they expect to be producing 150,000 pounds of this new material weekly as soon as the plant gets into full swing. The Long Fibre Textile Corporation is the only organization in this country which has authorization for use of this process, which was developed by Mr. del Carlos. A German plant, however, has previously manufactured this product.

Plans for a $2,000,000 bleachery to be erected at Rock Hill, S. C., for the Rock Hill Printing & Finishing Co., have been completed by Lockwood Greene Engineers, Inc., of Charlotte, N. C., and Robert and Co., Inc., of Atlanta, Ga., Associate Engineers. Construction contract, which amounted to approximately $400,000, was let to Brown-Harry Construction Company, Gastonia, N. C. Work has been started and good progress is being made.

The Statesville Cotton Mills, of Statesville, N. C., are to soon call for bids for $75,000 two-story mill addition; reinforced concrete, brick and steel construction; tar and gravel roof. Geo. C. Bell, of Charlotte, N. C., is the engineer.

The Neely-Travora Manufacturing Company, Neely Plant, York, S. C., have purchased another installation of Breton Minerol process for spraying raw cotton. This places the entire organization on this process, which was furnished by the Borne Scrymser Company, 17 Battery Place, New York City.

The Pepperell Manufacturing Company, of Lindale, Ga., have purchased their third unit of Breton Minerol Process for treating raw cotton. This additional equipment will be used exclusively on colored stock, and is in addition to two other units now being used on white cotton. These units are of the new high pressure type, and were secured from the Borne Scrymser Company, 17 Battery Place, New York City.

It has been stated that the Cowikee Mills, Union Springs, Ala., are to erect an addition to their plant, which will cost approximately $50,000, including equipment. The new addition is to be 54 x 294 feet, and will be of steel and brick construction. J. E. Sirrine and Co., Greenville, S. C., are the engineers.

A long term lease, with the option of buying, has been signed by the Westboro Weaving Company for the Lullwater Mill plant, Greenville, S. C. A great expansion is contemplated by the weaving company during the coming year, and a greatly increased production is counted on right away One hundred persons will be required to operate the day-shift, while 50 will be required for the night shift.

It is reported by the Whitin Machine Works, Whitinsville, Mass., that they have been awarded the contract for spinning and other equipment for the 16,000 spindle addition to the Republic Cotton Mills, Great Falls, S. C.

The first unit of the Du Pont rayon acetate plant at Waynesboro, Va., is fast nearing completion. More than 1,000 workmen are at work on this unit, and it was recently announced that the actual production of rayon will begin Sept. 1. The plant officials have already reached Waynesboro and creation of the manufacturing organization will begin at once.

The Sauquoit Spinning Company, of Gadsden, Ala., in addition to building a new conditioning room, has also decided to build a new packing room, which will be 40x80 feet. Robert and Co., Inc., are the consulting engineers, while the contractor is A. K. Adams & Company, of Atlanta, Ga.

The Arnall Mills, Sargent, Ga., have plans for a one-story addition to be 109x130 feet. Lockwood Greene Engineers, Inc., Spartanburg, S. C., are the engineers.

Plans for the organization of the Puritan Weaving Co., which will operate the properties at Fayetteville, N. C., of the former Holt-Granite Mfg. Co., were formulated just recently. The Fayetteville properties were purchased by the Cone interests about two years ago. It is now proposed to form a new corporation, as indicated, in which the Cones are to be large stockholders. The machinery now in the plant will be removed and entirely new equipment will be installed. The mill is to produce fancy cloth in colors. It is believed that the plant will be under operation within the next 90 days.

The cotton mill of the International Shoe Company, at Malvern, Arkansas, was formally opened on June 20th with appropriate ceremonies. The International Shoe Company operates 43 shoe factories and 20 auxiliary plants, and the Malvern plant is the first textile manufacturing concern to be established by the company. It will manufacture cotton drill for shoe linings. The main building, of steel and concrete construction, is 813 x 110 feet, and contains 12,384 spindles and complementary looms. Electric power for operation is furnished by the Arkansas Power and Light Company by a special sub station at the plant. L. L. Brown president of the Southern Textile Association, a graduate of the Georgia School of Technology, and formerly general superintendent of the Clifton Manufacturing Company at Clifton, S. C., is superintendent of the plant. Ground was broken for the plant in July 1928, and first manufacturing was begun on February 1st. The plant is now in full operation.

The Brewton Silk Mills Corp., Brewton, Ala., has reported contract let to E. R. Chambliss, of Brewton, Ala., for construction of plant. It is reported that the plant is to be operated by Rieback & Mandel, Inc., 40 E. 34th St., New York.

Contract has been let to Babcock & Wilcox Co., New York, for the furnishing of two 400 h. p. boilers, and to the Lile Stoker Co., Worcester, Mass., for two stokers, by the Fair Forest Finishing Co., of Spartanburg, S. C. Lockwood Greene Engineers, Inc., Spartanburg, S. C., are the engineers on the job.

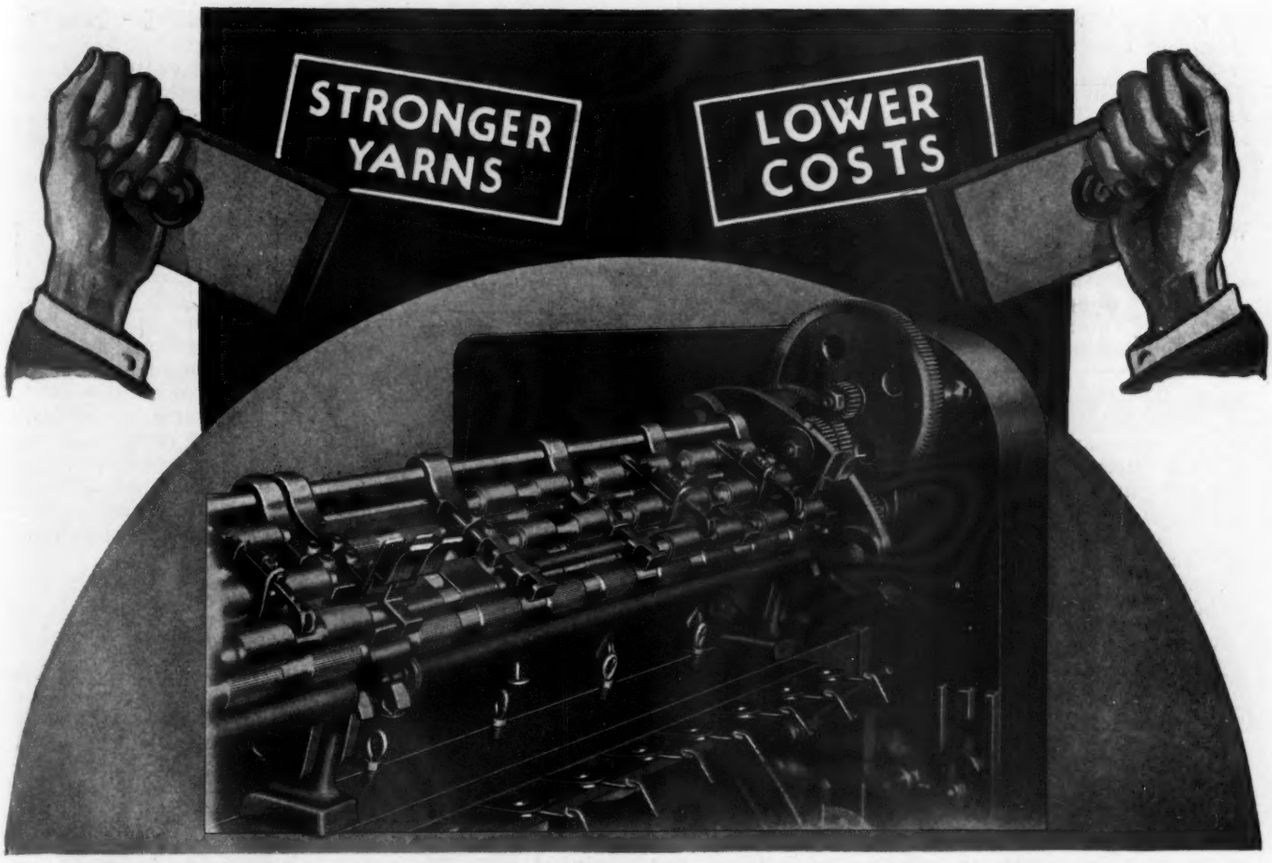
Work on the erection of the Bemis Bros. Bag Co. plant, Bemiston, Ala., is moving along at a rapid rate. More than 50 per cent of the machinery, including looms, spindles, cards and pickers, has arrived, and the installation of it is expected to take place immediately. It now appears that the plant will begin operation on scheduled time, October 1.

An improvement program has been started by the Pendleton Mfg. Co., a unit of the La France (S. C.) Textile Industries, which will involve about $80,000 being spent on the installation of an entirely new water supply system and erection of 17 new cottages for overseers. C. M. Guest and Son, Anderson, S. C., were awarded contract for the work.

Following the award of the contract for the construction of the new unit of the Pepperell Mfg. Co., at Opelika, Ala., to the Batson-Cook Co., of West Point Ga., it was announced that work on the new unit will begin at once. It was also announced that the company will construct 60 new homes for the mill operatives. The new plant is to manufacture print cloth, and, according to present plans, will begin operation October 1.

The purchase of the entire properties of the Thomas Henry Co., towel manufacturers, at Nashville, Tenn., was recently made by the Ingram Manufacturing Co., a new concern, which will manufacture cotton and wool yarn and cotton and silk yarn as raw products to be used in the manufacture of hosiery and underwear. Records show the purchase price of the plant to have been $283,000. The new concerns will continue to operate under the same management as did the old plant.

A bid for the C. R. Miller Mfg. Co., whose three mills located at Dallas, McKinney, and Waco, Texas, went into



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the hands of a receiver a few weeks ago, was made by a group of interested persons forming a reorganization group.

It was recently announced by the Cetwick Silk Mills, of Asheboro, N. C., that installation of additional machinery is to take place in the near future.

Contracts for preparatory equipment, 50,000 spindles and accompanying equipment for the new plant of the Goodyear Tire & Rubber Co., Rockmart, Ga., have been let to the Whitin Machine Works.

The following contracts were recently let by the Rock Hill Printing and Finishing Co., Rock Hill, S. C., for machinery and equipment for plant now under construction: Babcock & Wilcox Co., New York, for three 400 h. p. boilers; Rice, Barton & Fales, Worcester, Mass., for 8 printing machines; H. W. Butterworth & Sons, Philadelphia, Pa., for textile finishing machinery, and William Allen Sons Co., Worcester, Mass., for bleaching equipment.

The new weave shed of the Drayton Mills, Spartanburg, S. C., is now completed, and 700 new looms are being in stalled. These new looms are to be of two types—the Crompton & Knowles automatic box and the Draper automatic. The new shed will eventually house 1,500 looms.

The Avondale Mills, Sylacauga, Alabama, have recently installed another set of Breton Minerol Process Equipment for spraying raw stock cotton. The equipment was furnished by the Borne Scrymser Company, 17 Battery Place, New York City, and is the third installation made in the Sylacauga plant of this company since the first of the year. This equipment is of the new high pressure type.

The Whitnel Cotton Mills Company, Lenoir, N. C., are replacing the low pressure type of oil spraying with the new high pressure system furnished by the Borne Scrymser Company, 17 Battery Place, New York City.

The Crawford Cotton Mills, Crawford, Ga., recently installed much new machinery, including 50 new 42-inch Model E. Draper Looms. Robert & Co., Inc., were the engineers.

Contract was recently let to R. H. Smalling & Sons, Macon, Ga., for addition to Willingham Mills, Macon, Ga.

The new silk throwing plant of the American Silk Mills, Orange, Va., was recently completed and is now in operation. A crowd of 1,000 people witnessed the official opening of the plant, and a large number of these attended the banquet which followed. The supervision of the construction and designing of the plant was handled by Lockwood Greene Engineers, Inc.

Production of rayon was recently commenced at the new plant of the Du Pont Rayon Co., Ampthill, Va. Several hundred operatives are now employed, while additional operatives will be put on as they finish their training courses at the plant.

The new silk weaving and throwing mill of the Kingsport (Tenn.) Silk Mills was recently completed and is now in operation. Lockwood Greene Engineers, Inc., were the engineers on the job.

The Massapoag Corp., Lincolnton, N. C., will have work started soon on the addition to be made to their plant, which will be used as a weaving department and storage house. Lockwood Greene Engineers, Inc., are the engineers.

It has been announced that the A. M. Johnson Rayon Mills, Inc., Burlington, N. C., will begin work in the near future on additions that are expected to make the plant five times the present size. The development plan is to be a gradual one, however.

The Summerville Cotton Mills, Summerville, Ga., have recently ordered their second unit of Breton Minerol process equipment. This will now take care of all the cotton passing through their mill.

The name of the Virginia Silk Mills, Inc., at Rocky Mount, Va., has been changed to the name of the Angle Silk Mills, Inc., it was reecntly announced by stockholders. It was also announced that construction work on a new mill would be started in the near future.

The Yates Bleachery Co., Flintstone, Ga., has started an expansion program with the intention of doubling the size and capacity of their plant. It is understood that a new bleachery and warehouse are the buildings to be erected.

Ground has already been broken, and the construction of of the plant of the Montevallo (Ala.) Cotton Mills is to begin soon. The ware house and a spur track of 600 feet of railway, to connect with the Southern Railway line, are to be constructed at once, while the main plant is to follow. Robert & Co., are the engineers.

Cotton Comment *by H. & B. Beer*

New Orleans, July 16th, 1929

AS yet the cotton market shows no decided price trend, values, except for July, which is in process of liquidation, showing no important change compared with one month ago, new crop deliveries ruling somewhat lower.

Except for rather too much rain in the eastern belt, whether conditions during the period under review were generally favorable for progress of the growing crop, except that the rains in the eastern belt were considered favorable for increase and activity of the weevil in that section, and to a certain extent in parts of the western belt where rains were rather frequent.

TOTAL AVERAGE RAINFALL IN TEXAS

In Inches—Year—	1929	1928	1927	1926	Normal
For June	1.50	3.91	4.66	3.15	3.27
Nov. to June inclusive....	22.93	17.05	20.62	22.75	20.43

Texas, because of its generous supply of moisture this year, holds potential crop possibilities since generous Winter and Spring rains are considered a large asset to that important state, providing rains are had when wanted during the Summer, and if insects do not become destructive.

Government Cotton Acreage Report.

The Crop Reporting Board of the United States Department of Agriculture estimates the acreage of cotton in cultivation on July 1 to be 48,457,000 acres, an increase of 3.2 percent above the acreage on July 1, 1928, when 46,946,000 acres were estimated to have been in cultivation. This year's acreage is 6 tenths of one per cent less than the record acreage of 48,730,000 acres planted in 1926. The estimate relates to acreage standing on July 1, allowance having been made for any acreage which was abandoned prior to that date and for any acreage replanted and in cultivation on that date.

The increase in acreage has taken place mainly in the states from Alabama west, the eastern part of the belt showing only slight changes from last year.

The August 1 production forecast will be based on the acreage in cultivation on July 1, less the ten-year average abandonment in each state after July 1. The Board will collect no information on condition of the 1929 cotton crop until August 1.

Recently several private crop estimates were released, ranging from about 15,196,000 to about 15,750,000 bales, except that the Garside Bureau stated: "A crop estimate based on our acreage estimate, which was 49,532,000 acres, and our condition figure of 74.1 on July 1st would show, if using pars comparable with those of the government last season, an indicated outturn of roughly 15,400,000 bales; however, if weevil cycle pars were used, the indication would be roughly 14,500,000 bales.

Subsequently the Garside Bureau stated further: "The government report on acreage gave the acreage in cultivation on July 1 as 48,457,000 acres against 46,946,000 last year, an increase of 3.2 percent. If the abandonment after July 1 should be equal to the average in the past ten years, 3.7 percent, the harvested acreage would be 46,664,000 acres against 45,341,000 last year. The highest abandonment in the past ten years was 4.5 per cent, in 1919; the lowest was 2.9 percent, in 1922. If the harvested acreage should be 46,664,000 and the yield per acre were equal to the average of the past ten years, 155.0 pounds, the crop would be about 15,100,000 equivalent 500 pound gross weight bales. If, on this harvested acreage, the yield per acre were the lowest in ten years, 124.5 pounds, as in 1921, the crop would be about 12,100,000 bales. If, on the same acreage, the yield

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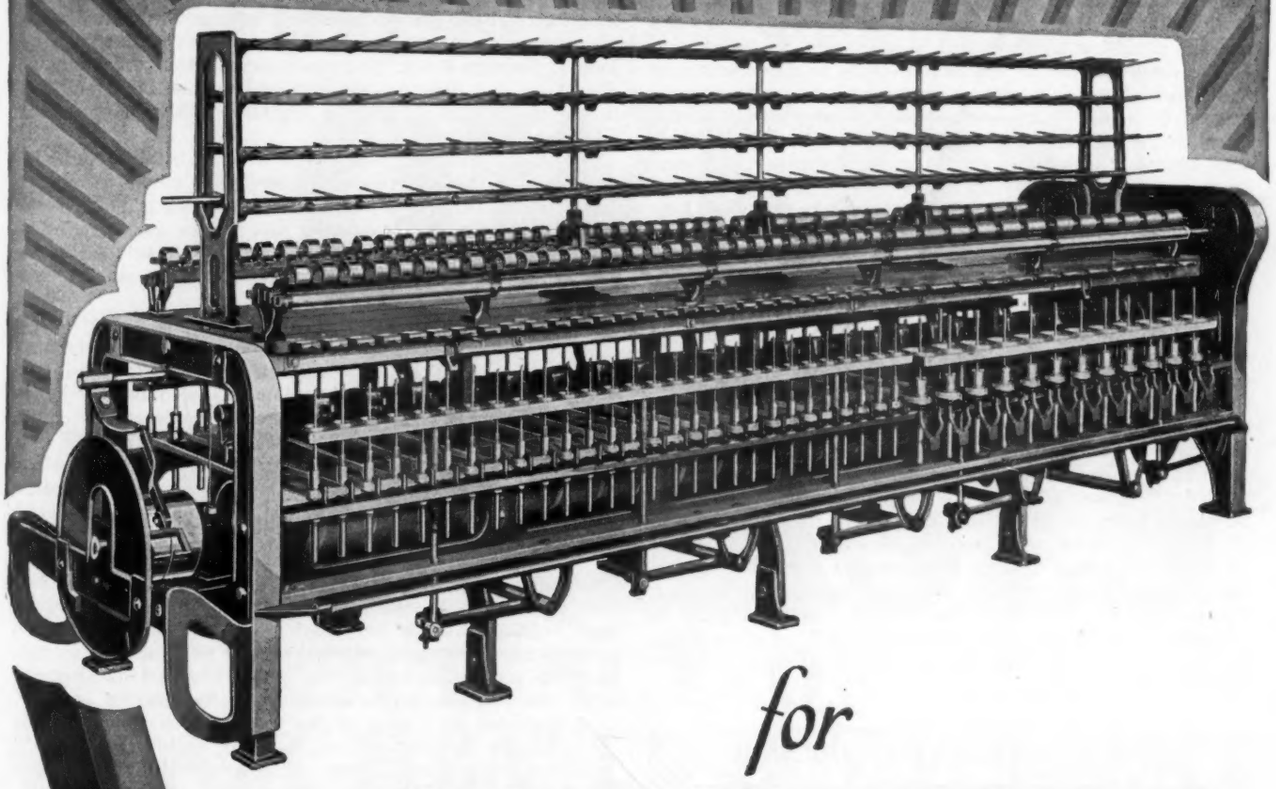

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per acre were equal to the largest in ten years, 181.9 pounds, as in 1926, the crop would be about 17,700,000 bales."

In weekly review, under date of July 16, Garside stated in part: "With favorable growing weather, the average condition of the crop continued to improve last week, reaching a height of 75.1, which is much above last year and the average for the same date. The average condition has now probably reached the peak of the upward movement in our belief, as the condition figure is now stationary or declining in five states. However, there is some possibility that the average condition may continue to advance for a short time as the condition in the remaining states is still advancing and weevil damage is not yet sufficiently heavy to cause a general decline. The theoretical bale prospect has shown a heavy increase since July first, amounting to several hundred thousand bales, and this theoretical prospect will continue to increase rapidly until heavy crop deterioration begins or until the deterioration equals the usual large July decline. We do not believe that the decline from now on will begin to equal average for another week or possibly longer."

On the other hand A. & M. College, Miss., reports in part: "Unless extremely hot, dry weather prevails for the next few weeks, heavy boll weevil damage will probably occur in most sections of Mississippi, with the possible exception of certain areas in the Delta and the counties in the northern and northeastern parts of the state, according to the State Plant Board."

Hot, dry weather, with an occasional rain, is apparently needed for a period to hold the weevil in check, not only in Mississippi, but in all infested sections of the belt.

The comparative smallness of the world's visible supply of American cotton denotes the probable need of a moderately large crop for next season's world requirements. Compared with last year, the world's visible supply of American is 2,060,982 bales against 2,712,477; of other kinds, 2,134,000 against 1,991,000; and of all kinds, 4,194,982 against 4,703,477.

New England Mill Situation

July 15, 1929

BUSINESS has grown quieter with the New England cotton goods mills but conditions are so very much improved compared with a year ago that manufacturers feel more encouraged concerning the longer future of the industry in this section. The mills in Maine have been operating quite steadily, although not to capacity. In New Hampshire operations are averaging well up to 75 to 80 per cent capacity and mills in Connecticut and Rhode Island are operating better than an average of three-fourths capacity.

In Massachusetts, while there are some mills operating to capacity, most of them are now averaging from 70 per cent to 85 per cent capacity. New Bedford mills are averaging about 70 per cent with some mills very well occupied. The finishers have passed the peak of production for this year, having had the best six months in the printed goods division ever known so far as the volume of output is concerned. There are still several plants running close to capacity on single time shift on printed lines, but the average employment in bleaching and dying departments is under 70 per cent.

The New Bedford Rayon Co., a subsidiary of the Delaware Rayon Co., is now turning out commercial rayon and is organized to produce about as cheaply as the average rayon plant in this section. It occupies a part of the buildings formerly owned by the Manomet Spinning Co. It is being operated on a night and day basis. Three tire fabric plants in New Bedford, owned by tire manufacturing companies, continue operating on a night and day schedule, but business with the other fine spinning mills is very quiet. Spinners making thread yarns are doing relatively better than those making yarns for knitting purposes.

Announcement was made a short time ago that the National Manufacturers Service, Inc., with headquarters at 185 Devonshire St., Boston, Mass., a Massachusetts corporation, has worked out a practical and lawful plan for preventing price cutting in the fine cotton goods industry. Robert A. B. Cook, a member of the law firm of Phipps, Durgin & Cook is president of the new company, N. H. Midgley of Providence, R. I., is vice-president, and John C. Shaw, Jr., of Boston and New Bedford, Mass., is also associated with the company as a Vice-President.

The president of the company made a statement through Lincoln Baylies, who is president of the National Cotton Manufacturers Association and a member of the firm of Amory, Browne & Co., dry goods commission merchants of New York and Boston. He detailed the familiar conditions in the market resulting from business being done without profit and oftentimes at a loss.

He said, "his firm was asked whether a plan could be devised whereby the ruinous competition might be placed under lawful inhibition and in its stead substituted a form of competition which would be cooperative and restrictive only in the sense that sellers would be precluded from deliberately doing those things that demoralize market conditions."

"Accordingly a plan was evolved and has been considered in conferences with leaders in the fine goods industry and the plan as submitted, has almost without exception met with their approbation." The plan has also been submitted to Government officials who would be interested in it if it violated any of the Federal statutes. He said, "to these officials we made the very direct statement that when the plan became operative there would be a perpendicular rise in price, at least to the point where no subscriber would sell his product below cost.

"While we did not expect to, nor did we, receive their expressed approval, nevertheless such comments as they felt free to make were far from discouraging. We have organized a Massachusetts corporation and are offering to the textile industry the establishment of a uniform cost system and the ascertainment of the cost of the various products with interest on the investment and the cost of our service, included as a part of the cost of such products; the investigation and prosecution of unfair trade practices; the effective prevention of those who become subscribers to the service from engaging in unfair trade practices, as for example, selling below their costs, granting improper rebates, discounts and allowances, extending unwarranted credit terms, shipment of excessive quantities of merchandise, and such other acts as might also be committed for the purpose of lessening competition, injuring a competitor, or demoralizing trade conditions.

"We will gather and distribute trade statistics, provide credit insurance for those who wish it, as well as Federal of State legislative credits, supervise credits and in this and other directions supplement the activities of trade associations, with whom we are prepared to act and cooperate to the very fullest." Arrangements have been made for the employment of cost accountants and if negotiations with the industry are successfully concluded it is stated that they are assured of the services as manager and director of that department of one of the outstanding men in the industry, as well as the servics of a prominent bank official as director of credits.

It is stated by the president that the company is very jealous of its plan, which has been copyrighted, and are giving the details of it only to those whom they feel are properly interested in it. Many manufacturers are taking a great interest in the plan but they are not yet convinced of its feasibility and, so far as can be learned at this time, it is still in abeyance.

It is stated that before the control of selling or management policies could be placed in a corporation of this sort the consent of mill stock-holders or at least Boards of Directors would have to be secured. That consent is not likely to be given quickly by mill stockholders under present conditions. They have become very critical as to the details of management and it would not be sufficient to tell them that an idea or plan has been copyrighted and cannot be made known to them publicly before it is accepted.

(*Continued on page* 1235.)

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NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

John B. Jones has been promoted from assistant superintendent to superintendent of the Shawmut Mill Division of the West Point Manufacturing Company at Shawmut, Ala., to succeed the late Oliver G. Murphy. Joe L. Lanier, production manager, has been promoted to assistant superintendent succeeding Mr. Jones, and B. W. Whorton has been made production manager.

Frank G. Bell, representative in Greenville, S. C., for the Carrier Engineering Corp., was killed suddenly on Tuesday, July 16th, when his car was struck by a truck on the Charlotte-Gastonia highway. Frank had been connected with the textile equipment industry in the South for many years, since his graduation at Georgia Tech in 1903, and a host of friends among the mill men and traveling fraternity mourn his loss. He was unmarried and is survived by his mother and one brother.

W. E. Shinn has become associate professor of weaving at Clemson College, Clemson College, S. C. He was formerly connected with the Textile Department of the N. C. State College at Raleigh, N. C.

L. L. Cobb has become overseer of bleaching and dyeing at the Roanoke Mills, Roanoke Rapids, N. C. Mr. Cobb was formerly connected with Lawrence S. Holt & Sons, Burlington, N. C.

William A. Norton, who has been general superintendent of the Pawtucket plant of the Manville Jenckes Company, has been appointed manufacturing manager of all this company's mills in Rhode Island. He will have charge of all their plants located in Pawtucket, Manville, Woonsocket and Georgiaville. Mr. Norton has been with the Manville Jenckes Company since 1919, and before going to Pawtucket as general superintendent, was superintendent of the company's Bernon mill at Georgiaville. His new appointment is in line with the policy of the company to combine and coordinate more closely their various manufacturing units.

James A. Toole, who has been division superintendent for the Manville Jenckes Company at Pawtucket, R. I., has been appointed general superintendent of that company's Pawtucket mills, succeeding W. A. Norton, who has been appointed manufacturing manager of all the Rhode Island mills operated by this concern.

George S. Harris, president of the Exposition Cotton Mills, Atlanta, Georgia, and former president of the American Cotton Manufacturers Association, has been appointed by Governor L. G. Hardman, as a member of the State Board for Vocational Education. He is to act as representative for manufacturing and commercial interests.

Col. Leroy Springs, president of the Springstein Mills and Eureka Cotton Mills, of Chester, S. C., had the honorary degree of Doctor of Laws bestowed upon him by the Presbyterian College of South Carolina, at Clinton, S. C.

W. A. Hadway is now general superintendent of the Southern Brighton Mills, Shannon, Ga.

Isaac L. Langley, formerly head of the cost engineering department of the Consolidated Textile Corporation, has been made assistant general manager of that organization. Mr. Langley is a graduate of the Textile School of the North Carolina State College.

Franz E. Plummer was recently made assistant to the manager of the Lynchburg Division of the Consolidated Textile Corporation. Mr. Plummer, upon his graduation at North Carolina State College, was awarded the Student's Medal by the National Association of Cotton Manufacturers for the highest proficiency in his work during the four years he was in college.

W. J. Carter, secretary and treasurer of the North Carolina Silk Mills, Burlington, N. C., has been elected secretary and treasurer of the Puritan Weaving Company, Fayetteville, N. C. This company has taken over the old Granite-Puritan Mills of Fayetteville.

H. E. Beck, formerly representative for Chas. A. Barkley Machine Co., has joined the sales organization of Ferguson Gear Co., Gastonia, N. C.

C. M. Carr, a former executive with the Durham Hosiery Mills, has accepted an appointment as vice-president of the American Enka Corporation.

Charles Bond, and Mrs. Bond, and their daughter, recently sailed on the Red Star SS "Arabic" for Antwerp. They intend visiting a large number of European countries before their return to the States, which will be about the middle of September.

J. T. Wigington has resigned his position with the Textile Bag Manufacturers Association, of Chicago, to accept work with the Bureau of Agricultural Economics, U. S. Department of Agriculture in Washington. He will devote his time to developing new uses for cotton. Mr. Wigington is a graduate of Clemson College.

James Montague, of Charlotte, N. C., is to represent the Kali Manufacturing Co., in Georgia, Alabama, and South Carolina, having already assumed his new duties. He is to handle a full line of the aforementioned company's products, and with his many acquaintances in the textile field and among finishing plants, a bright future in his new line of endeavor looms up.

Jesse M. Dunn has resigned his position with the Stafford Company to accept a position at the Textile School of North Carolina State College, Raleigh, N. C. He succeeds W. E. Shinn, who recently resigned his

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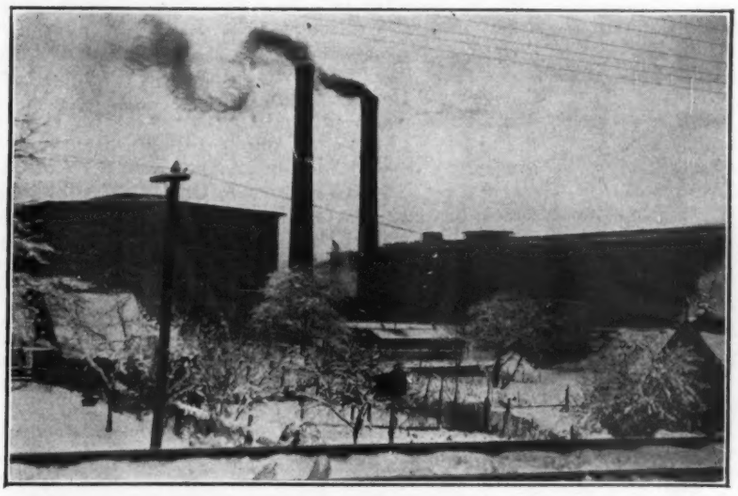
OLIVER G. MURPHY, superintendent of the Shawmut Mill of the West Point Mfg. Co., Shawmut, Ala., since 1915, died at his home on Friday, July 12th, following a lingering illness, at the age of 44 years.

Mr. Murphy was one of the best technicians in cotton manufacturing in the country. He succeeded his father at Shawmut, and two brothers surviving are George W. Murphy, superintendent, Columbus Mfg. Co., Columbus, Ga., and N. Barnard Murphy, superintendent, The Trion Co., Trion, Ga. He was beloved by all who knew him—a keen student of human nature, a highly religious character, a wonderful personality. At Shawmut he tutored and trained many young men who now occupy important positions throughout the industry, and to whom, as well as to hundreds of others, the death of "Mr. O. G." means the passing of a true friend and counselor. His memory, as was his personal leadership and guidance, remains a beacon of inspiration to us all. R. W. P.

85,000 Spindles Texaco Lubricated



EFFECTIVE lubrication always proves its value in dollars and cents. Here is another South Carolina textile mill where Texaco lubrication has demonstrated a decided betterment in operating conditions. It is one of the recent additions to the ever-growing list of textile mills which are one hundred percent Texaco lubricated.

The use of the right lubricant in the right way has more than ever become the profitable policy among textile operators today---and Texaco lubricants are now exclusively used in a very large percentage of the mills of the country.

On the spinning frames, for instance, Texaco Spindle Oil has been found to substantially reduce operating temperatures. Spindles run cooler. That means less wear and more spindles per H. P. It is but one example of effective lubrication.

Texaco Spindle Oils and the many other Texaco Lubricants for textile mill lubrication are scientifically designed to improve machine efficiency and save power. Texaco Lubrication Engineers are interested in your problems. They have the advantage of specialized knowledge of lubricants and lubrication, and will gladly cooperate with you at any time.

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position as assistant professor of knitting and designing to accept a position at another textile school.

H. B. Allen, it was recently announced, is now superintendent of the West Knitting Corp., Wadesboro, N. C.

A. C. McConnell is now secretary of the Hampshire Spinning Company, Clover, S. C.

M. R. Nichols is now superintendent of the Rayon Products Company, Union, S. C.

W. O. Tallent has become superintendent of the Moultrie Cotton Mills, Moultrie, Ga., filling the position of the late W. H. M. Woods. Mr. Tallent was until recently superintendent of Adams Duck Mills, Macon, Ga.

Arthur Tousignant has become agent of the Androscoggin Mills, Biddeford, Maine, succeeding James E. Coburn, who, it is understood, is retiring from active business. For several years Mr. Tousignant, a native of Massachusetts, has been located in the South. His most recent position has been that of agent of the Aiken Mills at Bath, S. C., and prior to that time he was superintendent of the Victor Monaghan Company at Greenville, S. C.

Rudolph Johnstone has become assistant superintendent at the Spartan Mills, Spartanburg, S. C. Mr. Johnstone is a graduate of the Georgia School of Technology and was formerly superintendent of the High Shoals plant of the Manville-Jenckes Company at High Shoals, N. C. His new work will constitute a recently created position as assistant to Walter J. Britton, superintendent of the Spartan Mill.

Stanley A. Black, for several years assistant to A. S. Paine, general superintendent, Kendall Mills, Newberry, S. C., has been promoted to the position of manager of the Oakland division of the Kendall Mills, Inc., at Newberry. Mr. Black is a graduate of the Georgia School of Technology, and up until several years ago was connected with the Lancaster Cotton Mills at Lancaster, S. C.

D. C. Fisher was recently made superintendent of the Chilhowee Mills, Athens, Tenn.

G. W. Stouffer is now superintendent of the Wellwood Silk Mills, Sparta, Tenn.

M. C. Sanders, well known throughout the southern textile industry, has again entered the manufacturers agent field. Among other accounts, he will handle the sheep skins for the Besse-Osborn & Odell, Incorporated; and the products of the Philadelphia Felt Company, J. I. Bernitz, American Representative for a number of imported products, including "Adolff" compressed paper bobbins and spools; as well as the products of the Jordan Manufacturing Company, bobbins, spools, etc.

W. J. Donaho, who for the past fifteen years has been resident engineer of the Carolina Cotton and Woolen Mills Company, Spray, N. C., recently died at his home in Spray.

A. A. Knight is now night superintendent of No. 1 weaving at the Lancaster (S. C.) Cotton Mills. He succeeded John T. Hunter, who was forced to resign on account of ill health.

C. R. Barton, of Anderson, S. C., was awarded the medal given by the National Cotton Manufacturers Association for outstanding work at the textile school of Clemson College, S. C. He will accept a position at the Erlanger Mills, Lexington, N. C.

H. W. Quick, who for the past 25 years has been associated with the Riverside Mills, Augusta, Ga., as secretary of the company, recently resigned his position and plans to retire.

M. M. Wilkie, who until recently was superintendent of the Anderson (S. C.) Cotton Mills, has accepted a similar position in Biddeford, Me.

E. H. Buckner is now overseer of carding at the Lincoln Mills of Alabama, Huntsville, Ala.

W. H. Bowen is overseer of day carding in the print cloth department of the Lowe Mfg. Co., Huntsville, Ala.

J. E. Gunter has been made overseer of carding at the Anderson (S. C.) Cotton Mills.

P. F. Parkman has resigned his position as overseer of weaving at the Toxaway Mills, Anderson, S. C.

D. C. Anderson, overseer of twisting at Goodyear Clearwater Mill No. 1, Cedartown, Ga., has been transferred to hold the same position in the Goodyear Clearwater Mill No. 3 at Cartersville, Ga., formerly the American Textile Company, which was recently purchased by the Goodyear Tire & Rubber Company.

C. W. Leister recently resigned his position with the Clinton Mills, Clinton, S. C., and has accepted a position with the Saratoga-Victory Mills, Albertville, Ala.

J. S. Baucom is now general overseer for night and day carding at the Gray Mill, Gastonia, N. C.

J. M. Freeman was recently made night superintendent of the Saratoga-Victory Mills, Guntersville, Ala.

R. B. Hunt is now head of the carding and spinning department of the Southern Brighton Mills, Shannon, Ga.

L. L. Bost is now day overseer of spinning at the Ridge Mills, Gastonia, N. C.

Standard-Coosa-Thatcher Appoints New Agents.

The Standard-Coosa-Thatcher Company, Chattanooga, Tenn., have announced that Cosby and Thomas, with offices in the Johnston Building, Charlotte, N. C., have been appointed as their sales agent in the Carolinas. The new connection began on May 1st. W. C. Henderson, who has been representing the company in this territory, has been located at the headquarters office in Chattanooga, where he is connected with the sales organization. The Greensboro, N. C. office of the company has been closed.

Robbins and Myers Announce New Division.

Robbins and Myers, Incorporated, Springfield, Ohio, manufacturers of electric motors, etc., have announced a complete new line of improved electric and hand-power cranes, hoists and trolleys up to ten ton capacity. The personnel of the new division were all formerly associated with the Chisholm-Moore Manufacturing Company of Cleveland in similar capacities.

Mundet Denies Rumor.

L. Mundet & Son, Incorporated, 461 8th Avenue, New York City, have recently issued a statement denying rumors which have been current to the effect that this organization has joined a merger or combination with other concerns. Mr. Mundet states that he and his associates intend to continue their business independently. The Mundet family has manufactured cork products for over 65 years.

"Music in Industry."

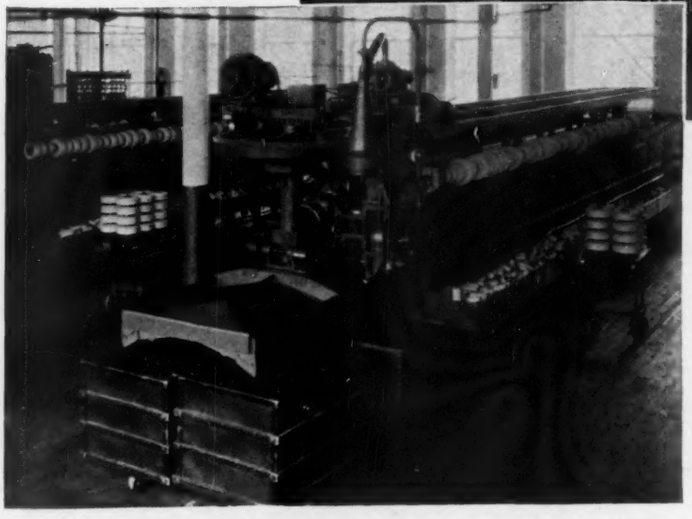
This is the title of a new book, by Kenneth S. Clark, covering a subject upon which comparatively little definite information has heretofore been available. It is based upon a survey made by the National Bureau for the Advancement of Music, to determine the extent to which the practical value of music in industrial lines is being utilized. The book contains reports which show musical activities as being maintained in 679 industrial or commercial establishments. From the plants represented, there are recorded a total of 267 bands, 182 orchestras and 176 choruses—besides 133 plants where there is community singing and 273 which provide musical instruments for their employees.

The textile industry peculiarly presents an opportunity for the use of music among its employees, and at numbers of mills various musical organizations are maintained. The general information and discussion in the book concerning the subject, therefore, will be of interest to these mills; and of especial interest to mills which may be considering a department of this kind, there is a chapter entitled, "Here's How," which gets down to brass tacks of information as to organizing and carrying on the various musical enterprises recommended as practical for industrial recreation.

The book is published by the National Bureau for the Advancement of Music, 45 West 45th Street, New York City. The price is $3.00 per copy, and copies may be secured either direct from the publishers or through COTTON'S book department.

"EVERY KNOT A WEAVER'S KNOT"

A SATISFIED USER



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A good measure of the excellence of any product is the number and quality of its Satisfied Users. This mill is a good example of the many that have installed Barber-Colman Automatic Spoolers and High Speed Warpers

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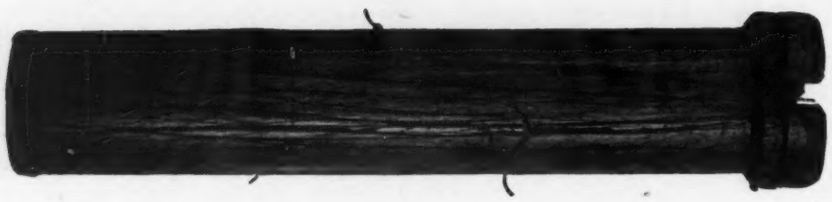
General Offices and Plant

GREENVILLE, S. C. ROCKFORD, ILL., U. S. A. FRAMINGHAM, MASS.



Do These Bobbins Look Familiar?

THERE is more than one mill in the country that is using bobbins as bad as these. Good yarn cannot be made on poor bobbins.

U S Card Room Bobbins are guaranteed to a definite degree of uniformity. The same careful attention is given to selection of stock, finish, and spindle, bolster, and gear fits that makes U S products the choice of the majority of mills.

Why not look over your Card Room Bobbins today? Ask yourself if you are imposing a handicap on your carders, and replace some of those old bobbins with U S better bobbins.

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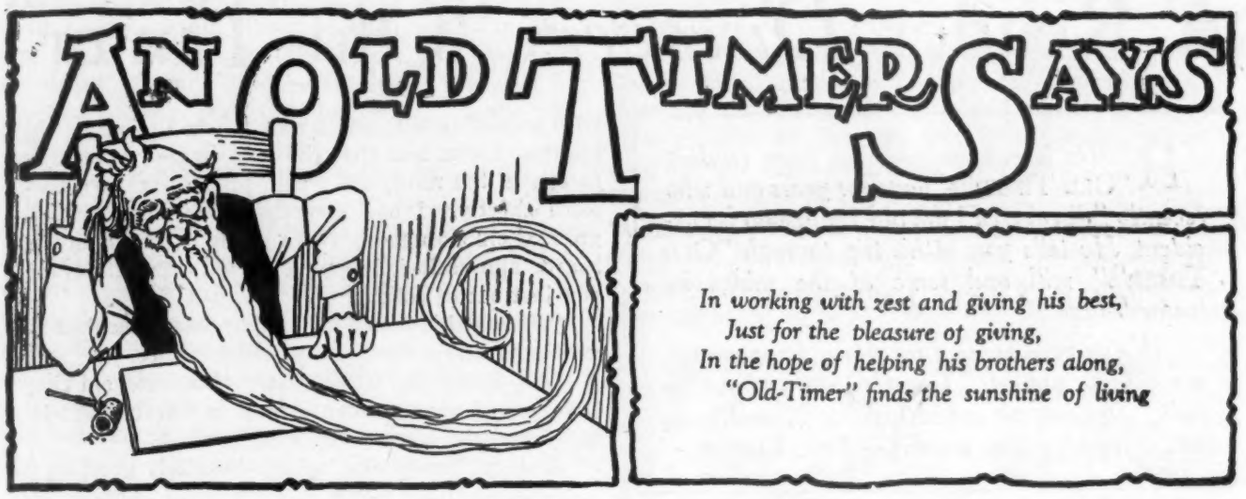

AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

"What Do You Know *About* Weaving?"

REGULAR readers of "OLD-TIMER'S" articles recall that each year, about this time, we let the old gentleman off for a well-deserved vacation. When this issue of COTTON reaches you, he will probably be sitting on some river bank a-fishing, and we take this occasion to announce a prize contest for letters on weaving which will be conducted under "OLD-TIMER'S" auspices. The contest is now open, and any mill man may participate.

At the bottom of this page are six questions on weaving. Some of them may seem unimportant or trivial upon first reading, but "OLD-TIMER" is pretty shrewd, and has submitted these questions to make you *think;* and we believe they will start a line of thought in your mind which will prove valuable.

There are very few rules in this contest. Simply study the questions carefully, and then sit down and give your answers to each in detail. Answer one or all, as you prefer. You *must* sign your name and address, although this information will be kept confidential. Attach any sketches or drawings necessary to illustrate any point discussed.

WHILE "Old-Timer" is on his vacation, we are publishing on the next page an article from a man who recently visited "Old-Timer" at his own mill and had a trip through the old gentleman's mill. He tells of some of the things he saw there, and we hope you will read it. This man made the trip "to see if 'Old-Timer' practices what he has been preaching to us fellows."—The Editor.

Answers must be in our hands by October 1st, 1929, and the winners will be announced in the November issue of COTTON. The judges will be "OLD-TIMER" himself, L. L. Brown, president of the Southern Textile Association, and former chairman of its weaving division, and the Editor of COTTON. The decisions will be based, not upon the appearance of the answers, but upon their practical value and common-sense. Contrary to the rules of many such contests, you may use both sides of the paper, a pencil, or anything else.

First prize will be *$20.00;* second prize, $10.00; and third prize, $5.00. Letters not receiving a prize will be paid for at regular space rates prevailing in the discussion department.

We hope those mill men with weaving experience will take part in the contest. If you lean more to carding or spinning, etc., be patient, and later "OLD-TIMER" will spring something along those lines for you. Send your answers to "OLD-TIMER", care of COTTON, 1020 Grant Building, Atlanta, Ga.

Robert W. Philip, Editor.

Questions for "Old-Timer" Prize Contest on Weaving

1. **Why is the crank-shaft box placed below the level of the bearing on the lay sword?**
2. **What prevents the shuttle flying out of the loom when it is being run with only a reed, that is, no warp in it?**
3. **Why do you set the harness cams to pick from the right-hand end with the back harness up—or do you?**
4. **What part or motion of the loom prevents its being operated at a higher speed?**
5. **Why has no material been successfully substituted for a leather check?**
6. **Where does the shuttle spend most of its time during weaving?**

(Our only suggestion to those answering these questions is to emphasize that the judges will not be satisfied with brief answers, but will expect contestants to explain the WHY of their replies in full detail.)

A Reader *Discovers* "Old-Timer"

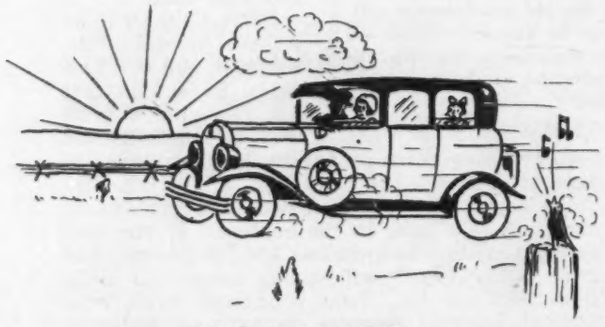
HERE is a man who has been reading "OLD-TIMER'S" *page for years and who recently "discovered" the old gentleman by accident. He tells you of his trip through* "OLD TIMER'S" *mill and some of the things he learned there.*

We've been waiting for this to happen, and are glad to publish "Tenny's" story about his visit. In fact, we asked him for it, and hope you will enjoy it as we did.—THE EDITOR.

WHAT joy comes to a person, when he can look forward to an opportunity offered for an automobile trip in a section where the roads are much better than the place where he is trying to operate a cotton mill.

The first week in April was warm and balmy, the dogwood was in bloom, and the redbuds added to the beauty of the hillsides. The foliage was coming out in a beautiful green, which made one's heart beat faster, and added to this was the pleasure of driving over really *good* roads.

Arriving at a prominent southern town in mid afternoon, we enjoyed a fine rest at a splendid hotel, and early the next morning got a good start in our Buick,



I Sight a Cotton Mill.

with the Secretary of War (my good wife) driving, then shifting to my daughter, and finally to me. This gave us all a fine view of the country through which we were traveling.

We called on several cotton mill managers, who were very courteous, and we found it a pleasure to meet them and to be invited to inspect their mills. We left each with much regret, and proceeded on our way.

Going over a fairly level country, with a farm house dotted here and there, we saw in the far distance several large smokestacks, which looked to me, from my experience with these creatures, as if there were more cotton mills in that vicinity.

We headed for them, and arriving in a thriving and very active cotton mill community, I said, "Well, well, I wonder who runs this place. Whoever he is, he certainly knows how to do it, from the looks outside." We stopped the car under the shade of a beautiful spreading oak, and I walked into the office. Upon inquiry, I was told that the man in charge was busy in one of the mills, but would probably return to the office shortly. I had scarcely seated myself when a grizzled old man, many years young, with a long white beard, approached, stepping in with the stride of a boy just out of college.

"Who is this man?" I thought, and it flashed over me that I had seen those whiskers before.

"Ah, I have it, 'OLD-TIMER'—that same old chap I have looked upon so many times in COTTON, but have never had the pleasure of meeting."

A warm handshake, with a heartfelt greeting be-

By Golly, It's Old-Timer Himself!

hind it, was what I received, and a cordial invitation to step into his office and talk things over.

As I am the superintendent of a cotton mill of a little less than a hundred thousand spindles, on practically the same work that "OLD TIMER" is making, my heart bounded with joy, to know that I had found him. I had read his messages and lessons in COTTON for years, and had always wondered where the old fellow lived.

"Well, 'OLD TIMER,' now that I have found you, after all these years of searching, I am going to ask you to show me through your mill, and tell me how you run it. If it runs as well as it looks outside, it must be a peach."

The old man replied, "Well let's sit down for a few minutes, and have a chat. The mill will be there, after we talk over what we want to see. Then we will go in and see it."

"Well, 'OLD TIMER,' I have read a great deal of your preaching, and now what I want to know is, whether you do all that you tell us to do, if we expect to get anywhere in this world of trouble."

I had a very interesting and instructive talk with the old gentleman, who came back at me with quick answers to my barrage of questions.

His system of records, in keeping up with the details of his job, is not elaborate, or tiresome, or red-tapey, but is simply a matter of complete record in every detail, showing that he is always prepared to know, and explain reasons, why certain results obtained.

It was readily apparent to me that he had set his standards of workmanship on a very high plane, and not only was workmanship in his aim, but very high moral and spiritual standards were uppermost in his mind with regard to the personnel of his mill.

This was reflected, upon entering the mills, by the quiet, contented attitude and feeling of confidence which was indicated to me by their activity and fine selective appearance.

We entered the weaving room and approached one of the superintendents.

"OLD TIMER" said to him, "Bring me your record book, please."

The superintendent returned shortly, with a small handy book which he handed to "OLD TIMER."

The book was opened to "Inspection of Temples," showing that the superintendent had, on a recent date, inspected all loom temples for defects, and finding a few, had noted the corrections at once, thereby saving many yards of bad selvages which will get by some fixers and some overseers.

"Where is the page about let-offs?" inquired "OLD TIMER."

The record was studied, showing some corrections that were made.

"Now the take-up motions."

Records of all parts of the looms, were thus recorded and indexed. Copies of these inspections and corrections were in the hands of the overseer in a systematic card file in his office.

This showed an opportunity for constructive criticism and correction which most overseers never have. They should consider themselves extremely fortunate to be hooked up to this leadership.

Passing on to the spinning room, another book was found to be carefully kept, recording spinning conditions, with defects, corrections, etc.

Spooling and warping also had their place, with records available always ready for study.

Continuing on through the picker and card rooms, again came the book and the card file, with records of the condition of every picker, card, drawing frame, slubber, intermediate and speeder.

The condition of the card clothing, the grinding and the setting, was on record, and the date of the inspection of every machine.

Speeder top rolls, with the length of life of each, on a basis of spindle hours run, was absolutely known.

How can a man who expects an opportunity in life do anything but make progress if he is sincere and is willing to recognize the truths that "OLD TIMER" is presenting to him through his pages of instruction?

Walking on to the machine shop, he showed me many new and convenient methods whereby repairs to crank shafts, rocker shafts and other machine parts are made, by original ways of their own.

I am looking forward to a complete explanation of these methods of his, on that page in COTTON under his whiskers.

We returned to the office by way of the stock room, and he said, "How do you keep an inventory of your stock room?" I replied that we had a card file record of every bin, by number, with the contents placed thereon. He explained to me his method of accounting for his stock in hand.

He said, "We have a maximum and a minimum requirement, for every article we use. For instance, if we wanted pick cam noses, we would carry a minimum of one hundred on hand. When the amount drops below this number, the stock clerk hangs a red tag on the outside of the bin. All bins are carefully watched each day for requirements, presented by these red tags. The order is placed for renewals at once. When the order has been placed by the buyer for the mills, the red tag is removed, and a green tag placed outside of this bin, indicating that the articles have been ordered. This green tag is kept on the hook outside of this bin until this order has been received and placed in the bin. The green tag is then removed, showing that the contents of this bin are in a normal condition, at a point below maximum and above minimum, of the cam noses required for that bin."

He Shows Me All of His Records.

I stayed with "OLD TIMER" from 10:30 in the morning until 2 o'clock in the afternoon and was so interested in what I was seeing and learning that I did not even let him have his lunch, but as he said, "Sometimes I eat and sometimes I don't," and his invitation to stay all day showed his extreme interest in his work and his cordiality to his associates and visitors.

I could not tell in this letter everything I learned during my visit to "OLD TIMER'S" mill. I can only say that I feel I should be the envy of every reader of COTTON for having had the opportunity to visit the venerable old gentleman in his own bailiwick, with the knowledge that I was visiting the man who has given the readers of COTTON so much encouragement, inspiration and valuable assistance and advice during the years that he has been writing his department for COTTON. When he does come to visit me, I hope he will treat me just like he does his young friend Jim when he visits his plant, and I can assure him that I will get a special dispensation from the "Secretary of War" which will permit him to use his old corn-cob pipe, even if it does smoke up the curtains in the living room.

TENNY.

The Greater Wastes

The Greater Wastes are the wastes of *mind,* not of matter — wastes of mental energy rather than in material things. Fear, doubt, uncertainty, indecision, procrastination are the unlicensed robbers in every mental territory. But the greatest mental waster of them all is *worry*.

These greater wastes *seem* greater in Business because, of all human activities, Business presents the closer, more visual, and more material check-up.

While *Modern* Accountancy is no cure-all for the *lack* of mind — it *is* a stop-cock for these greater mental wastes. Its enlightened perception of the practical meaning of facts and figures — its orderly application of System and Method in Management, the assurance of its Detailed Audit, the guide of its Budget, its light on Costs — and, above all, the security of its Control, are lessening every day the *greater wastes*.

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

What Makes Warp Kink With Plain Cams?

EDITOR COTTON:

We have some looms on 37½-inch 112/60, 3.85 broadcloth, and are using two-harness plain cams. These looms are making seconds due to the warp kinking. We also have some looms on this same construction, with staggered cams, and are not having any trouble due to the warp kinking. We would like to know why the plain cams cause the warp to kink and the staggered cams do not. We should appreciate some suggestions from readers of COTTON who have had experience on broad cloth as to the probable explanation of this.

CONTRIBUTOR No. 4625.

"If You Can Meet With Triumph and Disaster, and Treat These Two Imposters Just the Same—"

EDITOR COTTON:

When a man makes a failure he has to endure it, but the question is, can he bear up under prosperity and all that goes with it, or, will he, like many others before him, be swept back into the great class of failures by reason of not being man enough to stand it?

When one is not strong enough to stand prosperity, and gets swept back into the class of failures then what must he do? Quit? Not if he is made out of the right kind of stuff. If a man has the guts, he will come back. If he does come again, the chances are that he will stay on his feet when success hits him, for he has been there before. In other words, he has had the experience, and experience is the greatest teacher of them all, though pretty high at times.

God made man, and put a head on him, and man made a hat to go on that head. The hat looked pretty good on the head, and that is what caused a lot of trouble, for many men get the idea that their head is just a handy place upon which to hang their hat, using the knoll of knowledge which God gave them, for a common hat-rack only. That is why so many have made failures in life, and why they remain failures.

Man needs that head for many things, and it is convenient to hang his hat on, but he also needs the stuff in that head to bring him success. However, the stuff in his head will never be of any value if it is not given the exercise it needs to develop it.

The individual is a free agent. If he thinks it is of more value to use his head for a hat-rack only, that is his business. It may be that he has never tried to use it for anything else. If not, then the writer would like to make this little suggestion, namely, that he place his hat before him; then think of one of the most successful men of his acquaintance, and in his mind, place him there beside his hat; let his thoughts dwell upon what this man has accomplished in life; then compare his own successes and failures with those of his acquaintance. If he has anything in that head of his it will start working. If nothing starts, then he should place his hat back on his head and be upon his way, consoling himself in the thought that at least he has a first-class hat-rack.

J. T. D. (MISS.)

Says "Old-Timer" Should Be a Preacher!

EDITOR COTTON:

In regard to the question asked us by "OLD TIMER" in the April issue of COTTON, as to whether or not we would hire ourselves for our job, though you probably think I am ready to say yes, I would most emphatically say, no. I pasted that question in my hat band and had the headache so bad that I had to remove it, yet I could not keep from thinking of it.

A long period of time elapsed before I started reading COTTON as I should have, but when I did start, and found how interesting "OLD TIMER'S" articles were, I have decided that a much longer period will go by before I miss the helpful hints I receive each month.

I can't understand why "OLD TIMER" didn't take up preaching the Gospel, along with the writing of stories in a textile paper. I believe he would have made Billy Sunday look like a bush leaguer, and I believe he could still do it if he had a little assistance, so I am going to volunteer this help by offering the following Ten Commandments:

Ten Business Commandments.

1. Thou shalt not wait for something to turn up but shall pull off thy coat and go to work that thou mayest prosper in thy affairs and make the word failure spell success.

2. Thou shalt not be content to go about thy business looking like a bum for thou shouldest know that thy personal appearance is better than a letter of recommendation.

3. Thou shalt not make excuses, nor shalt thou say to those who chide thee, I didn't think.

4. Thou shalt not wait to be told what thou shalt do, nor in what manner thou shalt do it, for thus may thy days be long on the job which fortune hath given thee.

5. Thou shalt not fail to maintain thine own integrity, nor shalt thou be guilty of anything that will lessen thy good respect for thy self.

6. Thou shalt not covet the other fellow's job, nor his salary, nor the position which he hath gained by his own hard labor.

7. Thou shalt not fail to live within thy income, nor shalt thou contract any debts when thou canst not see thy way clear to pay them.

8. Thou shalt not fail to blow thy horn, for he who is afraid to blow his own horn at the proper occasion findeth nobody standing ready to blow it for him.

9. Thou shalt not hesitate to say No when thou meanest No, nor shalt thou fail to remember that there are occasions when it is unsafe to bind thyself by hasty judgments.

10. Thou shalt give every man a square deal. This is the last and great commandment and there is no other like unto it, for upon this commandment dependeth all the law and the prophets of the business world.

D. A. V. (N. C.)

A Report on Straight Wire Card Clothing.

EDITOR COTTON:

After reading several good articles on the straight wire card clothing for the revolving flat card and having made several tests on this wire myself, I thought it might be of interest to other readers of COTTON for me to express myself in regards to what my tests with this straight wire clothing, which is now being introduced to the mills, have revealed.

After having clothed one card with this new style straight wire, and ground to a smooth surface, I ran a weighing test with this card against one clothed with knee wire for a period of one week. The following gives the results obtained:

Card Clothed with Old Style Knee Wire.		
Strips from cylinder and doffer	7 lbs.	6 ozs.
Strips from flats	19 lbs.	
Fly under doffer		5 ozs.
Fly under cylinder and leader	5 lbs.	4 ozs.
Total	31 lbs.	15 ozs.

Card Clothed With New Style Straight Wire.		
Strips from cylinder and doffer	none	
Strips from flats	11 lbs.	
Fly under doffer		5 ozs.
Fly under cylinder and leader	5 lbs.	4 ozs.
Total	16 lbs.	9 ozs.

The above figures show a saving of almost one-half in strips and fly for the new style straight wire card. Not only was there a great saving here, but when we stripped the cards, four weeks and four days later, a far smaller per cent of good staple was found in the straight wire fly.

All carders know that it is a well established fact, when we first strip a card, if we put the end up immediately after stripping, the sliver will be light until it has run several yards. I have made several tests of this kind, and have found that it takes from 30 to 50 yards for the sliver to come up to its normal weight, and because of this, I allow the card to run with the web down until it has run off enough to allow the weight of the web to become normal, which causes a waste of several ounces per card for each strip. Then, if we are running heavy, or carding heavy, and strip four times each day, we will make one-half pound of waste per card each day, or two and three-fourths pounds per card each week, to say nothing about the damage to the sliver in piecing the breakage, and the large places caused by doubling the web while putting up ends.

Another factor that I consider very helpful to successful carding is keeping the cards sharp. I think it is through this method that the very best quality in carding is obtained, which causes me to insist on grinding the straight wire at least once a month, stripping before each grinding, and stripping the doffer once every week.

I imagine the following questions are in the minds of some of the readers of this article:

Will this straight wire fillet last? Will it do as good carding as the knee wire?

In answer to the first question, I will say that it certainly requires less grinding, and, as grinding shortens the life of the fillet, the life of this straight wire fillet is somewhat longer than that of the knee wire. Then too, this straight wire fillet never becomes loaded, which prevents the fillet heating and producing excessive labor on the fillet's foundation.

In regard to the second question, it is well understood that a card, so far as quality is concerned, is at its best when it is cleanly stripped. All experienced carders realize fully that the heavier loaded the fillet is with strips, the lower will be the quality of the carding. They also know that if a knee wire card is allowed to run from 8 to 14 hours without stripping, it will become loaded and cause it to finally quit carding at all, as well as damage the fillet by stretching the foundation, thus resulting in an injury to the doffer, and affecting the top settings, which is also injurious to good carding.

On the other hand, I have found that this does not hold true where I have used the straight wire, but that the fillets remain clean and even at all times, which causes me to believe that the quality of the straight wire fillets is much better than that of the knee wire fillets. Taking all this into consideration, I consider straight wire fillets as another achievement in the art of carding.

CONTRIBUTOR NO. 4597.

Clemson Secures Texilscope.

The Textile Department of Clemson College, S. C., has recently added to its equipment a texilscope. This instrument was secured from the Universal Texilscope company, 373 Fourth Avenue, New York City. The texilscope identifies the nature of the fibers used in yarn or cloth, the basis of determination being the relative conductivity of various materials. This instrument may be used with equal accuracy on finished or unfinished, on dyed or undyed goods. Its greatest advantage in the identification of cotton, rayon, silk and other textiles is that the test does not injure the material in any way, it is stated.

What Causes Bowed Cloth?

EDITOR COTTON:

I would like to see some discussion in regard to bow cloth, when torn across after taken from the loom. What I mean by bow cloth is that after the cloth is taken from the loom and torn from one selvage to the other, it will have a bow effect, with the selvages being longer than the center of the cloth.

There was something said about this in a recent issue of COTTON, but to date no one has given a solution to the trouble.

The broader the cloth is, the more noticeable is the bow. I would like to see some discussion from practical weavers on this, giving their views and suggestions as to what will help out in this matter. I find that it is almost impossible to overcome it. I have tried several things, but they do not seem to help much.

PINE TREE STATE (MAINE).

Late, But Worthwhile.

EDITOR COTTON:

As it has been said by some eminent writer that the streets of the "City of Failure" are paved with alibis, I am not going to offer many excuses for my procrastination in picking up my pen to write these comments. However, (look out alibi) I am going to console myself with the fact that a comment is new until it has been read or heard by someone.

In the September issue, "T. B. (N. C.)" gave the conditions under which the Washburn wood top roll would operate best in spinning. I agree with everything that he said, but I do believe that he should have mentioned the speed of the middle roll. I have found that, in order to obtain the best results, it is necessary to increase the speed of this roll to such an extent that the draft between the middle and back roll is from 1.20 to 1.25.

Polishing Rail Rings.

Also appearing in the September issue, was an article by "M. B. (S. C.)," giving us the results of his experiments with grinding compound in polishing rail rings. He stated that he polished one rail of rings with this compound, and, after running the frame two days, he examined the rings and found them all to be in perfect condition. He also stated that no rubbing off on the yarn took place when the frame was started up. Therefore, it certainly appears to me that it would be worthwhile for all of us to give this grinding compound a test.

A Mill and Its Folks.

I think the article, "A Mill and Its Folks," written by Dr. Potwin in a past issue, deserves special commendation. I advise anyone who did not read this article to dig right into their old copies of COTTON for the July issue of 1928, and read this most interesting, as well as instructive, article by Dr. Potwin. She showed that she was thoroughly acquainted with the home life of mill people, and was not, as so many other writers in the past, writing from a superficial knowl-

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edge. She very convincingly proved that much we hear about mill life is just a lot of propaganda.

Spinning With and Without Humidifiers.

In the July issue, when "CONTRIBUTOR No. 4026" asked "CONTRIBUTOR No. 983" to run a test for end breakage per thousand spindles per hour in both spinning rooms—that is, in a room with and without humidification,—I think he should have asked him to take the surroundings of the room without humidifiers into consideration. I know of a weave room where there are no humidifiers and yet on tests for moisture content in cloth from the loom, they usually find from eight per cent to nine per cent moisture in the cloth. The reason for this is that the looms are all on one floor, and the floor is situated over a swamp. As the looms are driven from beneath the floor, the moisture comes to the room through the belt holes, and, as the moisture must pass through the warps before reaching the top of the room, this is really better than artificial humidity. The spinning room of "CONTRIBUTOR No. 983" could possess this same kind of natural humidity.

Promotion in the Mill.

I have read the article by "CONTRIBUTOR No. 4070" in the November, 1928, issue of COTTON on "Promotion in the Mill," and, from his article, I would surmise that he is absolutely sold on the practical man, and that his estimation of the value of a textile student would not be anything to write home about.

He tells of the method employed by the great electrical plants. That is, of taking the university graduates and, instead of putting them to work in the engineering departments, placing them in the shops so that they may become familiar with all phases of the work from the ground up. He states that this is done so they will not only have a technical, but also a practical education. "CONTRIBUTOR No. 4070" asks why the textile school graduate should not round out his education by practical experience in the mill, stating that he would get some valuable information that the school does not teach.

I am heartily in accord with everything in the foregoing paragraph, but I believe that most textile students are made to realize before leaving school that they will have to start in on the ground floor and show something, other than their diploma, before they can hope for promotion. They are also taught that this is necessary if they are ever to be of any real value to their employer.

Running Humidifiers Over the Week-End.

There are cases where students have been placed in positions much too high for them to start on. They become swellheaded, and in most cases make a botch of the job, which causes all textile students from that time on to be put in the class of failures. However, the majority of textile students are earnest and industrious, and realize that their education only gives them a foundation upon which they can build more surely and successfully.

The writer happens to be one who believes that running humidifying systems over week-ends is a bad policy. Unless there is someone there to watch them continually some costly damage might result. Just one humidifier failing to close properly would wet a lot of machinery, thus causing rust, and also cause sticky rolls and wet cotton. Providing all were working properly, the cotton would have absorbed too much moisture during the time stopped, and this would mean heavy work at the start, which would necessitate the changing of considerable gearing in a very short space of time. The keeping of an even temperature during the week end has very much to do with good starting. I would advise using warm water at all times in humidifying.

Managing a Speeder Room.

The article of "CONTRIBUTOR No. 686," appearing in the November, 1928, issue, on "Managing a Speeder Room" was to my mind a very good article.

However, he said that before rolls are sent to the roller shop to be recovered they should be slashed with a knife, care being exercised to cut the cloth, otherwise the roller coverer is apt to use the old cloth, putting a new cot on over the old felt. A soft roll will most likely be the result, and the roll will also be more liable to flute and groove, he stated.

Now I do not believe there are any shops that stop to take off cots and save the flannel on speeder rolls. Usually when the rolls are received at the shop they are immediately dumped into a vat of boiling water, which loosens up the glue and allows the cot and flannel to be removed. It would be an extremely expensive job to have men cut off cots, having to handle every roll this way. I have been to a great many of these places and they all do the same thing.

Advantages of Double Belting.

The advantages obtained by the use of double belting is not realized by many mill managers, for, if they were, instead of always complaining of the cost, the mill men would consider the increased length of service and production possible by the use of double belting.

I have had some experience in a card room which had a great many single short counter belts, and when these came off they would lap around the shaft and it would be necessary to stop the entire mill while this belt was taken off. One day the superintendent was in the mill when this happened and was greatly provoked when he saw all of the looms stopped while this one belt was being fixed. He made inquiries about these belts, and, upon learning they were all single, ordered them all to be changed to double belts. This was done gradually, and after the complete installing of these double belts, we had no more trouble with belting.

Busy Doffers.

The doffers always having something to do when called to doff is nothing unusual, and will be found in all mills at times—human nature is hard to change. It is all right to have the speeder tender follow them up, but her work is such that she cannot at all times do this. This, to my way of thinking, is part of the

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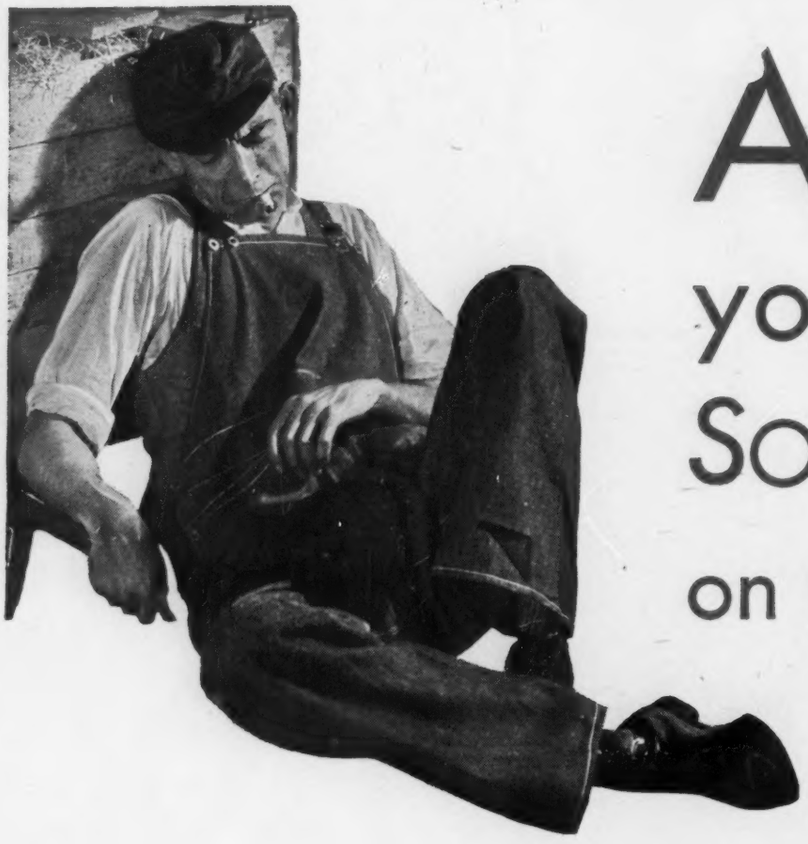

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MANY a plant manager who fires the lazy worker still tolerates the lazy scale . . . the sluggish, inaccurate beam scale that soldiers on the job, wasting time, stealing profits.

Watch the lazy scale in operation. A poor worker, it needs a lot of supervision. Loose weights to be fussed with, poises to be shoved back and forth. Its bearings are sluggish; its beam wobbles uncertainly. With the job little more than half done, the lazy scale foists onto another the mental computation necessary to arrive at the final weight. A weight, that in the very nature of things, is seldom absolutely accurate.

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work of the second and third hand; if they are following this up, better results will be obtained.

I also believe in speeder tenders pairing up, but have found it very hard to compel. As a rule they will work together, but when you try to compel it, then you have some job. The best results are obtained when they do this of their own free will.

Qualifications of a Leader.

There is an article in the November issue that every man interested in being a leader should read. "Qualifications of a Leader," by "JACK (TEXAS)" is an article that will give anyone a vast amount of good "dope," and if thoroughly studied, will greatly benefit the reader. One reading is not enough, read it until it really soaks in.

Your Job.

In the December issue, "T. A. D. (GA.)" writes about his son and the way he is sold on the job he holds. This, to my mind, shows that "T. A. D." has been sold on his own job, and the boosting of his own work has taught the boy the very essential of success, for most boys hold their father up as an ideal and try to shape their lives to be as much like dad's as possible. It's a shame we can't all be like this, for no man can give his best to any work who is not sold to it. Try to conceive of the results that would be obtained if 75 per cent of our mill men were like this.

Card Drafts.

"CONTRIBUTOR NO. 4057" wrote an article, appearing in the December issue, on card drafts, telling of the effects of changing from a 50-pound lap on the cards, with a draft of about 90, to a 60-pound lap, with a draft of 110, to get the same production. I am assuming that the doffer speed remained unchanged.

The idea that the picker did not do as good work on the 60-pound lap as on the 50-pound lap is good, but a question might arise here whether the ten extra pounds had been put into the same length of lap. However, from his article, I am of the opinion that the extra ten pounds were put into the same length. When that was run through the card, and the doffer speed kept the same, the work required of the card was greatly increased. In other words, using an illustration, where you had been putting through 150,000 grains per hour, you are now putting through 190,000 grains per hour. These 40,000 grains extra must be handled by the same number of points, which means that they cannot do their work as well.

I do not believe there would be any benefit derived by lengthening the draft and increasing the doffer speed, because you would not be changing the number of grains being fed per hour, and unless this is done, it is impossible to better the carding. This is from my study of the card, and I believe that further discussion along this line would benefit all of us.

Safety First in the Card Room.

The article in the January issue on "Safety First in the Card Room" is worthy of much study. There are more causes and dangers of accidents in the card room than any other room in the mill, and we cannot be too careful of ourselves or our help. Therefore, let us teach them the results of these accidents, and we will probably be able to prevent some of them. To have your accident record low should certainly bring forth all the pride possible for anyone to exhibit, for it means less suffering for others, and a much greater production for your mill.

A Worthwhile Article.

The article "Come With Me, Comeling," by Oliver G. Murphy, appearing in the February issue, took us into dreamland, yet it was full of "solid meat." When we can read such articles it makes us think more deeply and we are all much further advanced in our own line because of the thinking. Please let us have some more.

CARDER (MASS.)

Is Your Job Really Hard?

EDITOR COTTON:

When one stops to think of the thousands, or shall I say millions, of facts there are to be learned, connected with cotton manufacturing, it is almost enough to turn one's hair white overnight, but when you think a little further, you begin to realize that it isn't as tough a job to learn a lot about mill work as it might seem.

Any man who has a job in the mill has a hundred or more willing teachers ever ready to help him gain more knowledge. You wonder, no doubt, who these teachers are—why, the help of course! They are those who either work with you or for you. They are always ready to teach, if you are ready to learn. No man is so big that he cannot learn something every day, and in the most unexpected places, providing he is willing to keep his mind, eyes and ears wide open all the time, and no operative is so lowly or unimportant that he hasn't at least one fact that is worth knowing.

One of the most important facts I ever learned, or ever will learn, came from a most unexpected source several years ago when I was speeder-fixing in a large mill in New Jersey.

One of the best speeder-tenders we ever had in that mill was a young girl hardly seventeen years old. I approached her one day as she was sitting on the stool that was kept at the end of every pair of frames. I said,

"How is it, Elsie, that you have never called me to fix a frame for you?" She replied that she had a set of tools of her own and did her own fixing. Well, I looked at her for awhile with my mouth wide open. She asked me if I'd like to see her set of tools, and when I replied that I would, she went in back of her frame and got them for me, a piece of hard waste and an oil can. That was Elsie's full set of tools; all that she or anyone else ever used on that pair of frames, week after week.

That set me to thinking. I had 60 roving frames, 24 intermediates and ten slubbers to look after, and I figured if an oil can and a piece of waste were such good tools for one set of frames, then they were good tools to use on every other set under my care. You can bet that from then on, I tightened up on the

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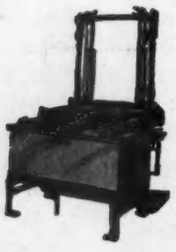

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Paul Knitting Mills, Pulaski, Va.

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Thus we are informed by a firm which replaced hand dyeing with Smith-Drum Skein Dyeing Machines; and the same firm reports a winding-room increase of 50% on rayon, and 25% on cotton . . . and this, with a reduction in labor of 40%. Significant, isn't it?

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cleaning regulations laid down by the boss. Every tender from then on, cleaned his frames exactly to specifications, or else I put up a terrible holler, and the old oil tank was always ready to be filled every Friday afternoon. You can take it from me, that it was not long before my job was running a darn sight smoother and I was doing a darn sight less work, and we used a darn sight less supplies than we had been using, with the exception of hard waste and oil. We used more of these.

Then, to top the whole matter off, the boss came up to me one morning and told me he was well satisfied with the way my work was going. Just think, all that from a little hard waste and a can of oil! But, after all, that's nothing. Don't scientists claim that one single cell of life started this whole mess we are pleased to call earth?

CONTRIBUTOR NO. 4604.

Just Which is the Proper Way to Figure Weight on Top Rolls?

EDITOR COTTON:

'Way back in the February and July issues of 1926 contributors "G. S. T. (GA.)," "A. N. (MASS.)," and "H. D. M. (S. C.)" started the ball rolling when they started disagreeing with each other on the proper method of figuring the pressure exerted on top rolls on spinning frames. For a rather long period of time there was a much too noticeable lull in hostilities, and I was beginning to fear that it was all due to this rapidly advancing mechanical age we are living in, which is not so conducive to argumentation along mechanical lines, as they all know the right method.

But like a thunderbolt out of a clear sky, it was just such a shock to me, here comes "H. H. (MASS.)" in the April, 1929, issue of COTTON saying "H. D. M. (S. C.)" was all wet in his method, and that he would give us the correct method.

Maybe "H. H. (MASS.)" did give us the correct method, but "F. A. F. (N. C.)" came right along in

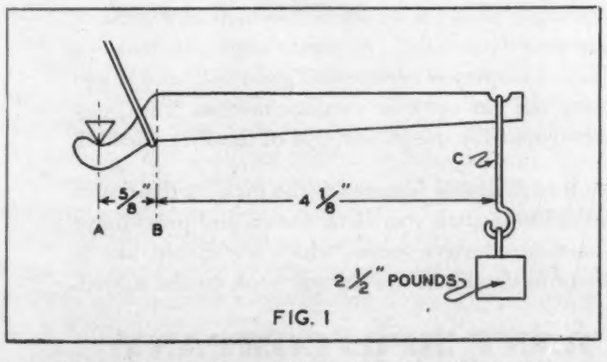


FIG. 1

the June issue and said that "H. H. (MASS.)" was damp himself, so he would enlighten us as to the proper method of figuring the pressure on the top rolls. So, much to my delight, it seems that our little war has been renewed, and that maybe someday someone is going to give us the proper dope.

One thing I can't understand, though, is why not even one of the aforementioned contributors has never offered, in the form of a rebuttal, anything to back up his statements which were torn down by other contributors. Can it be they haven't confidence in their

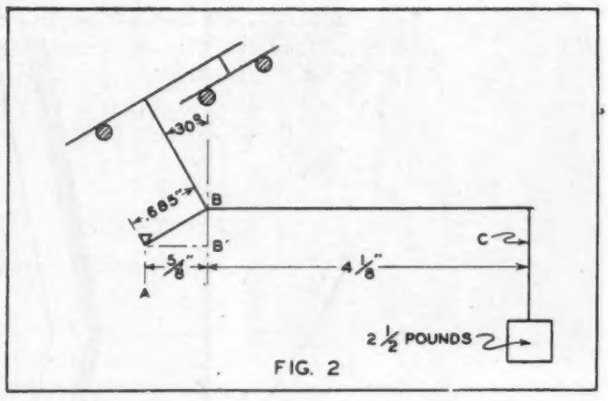


FIG. 2

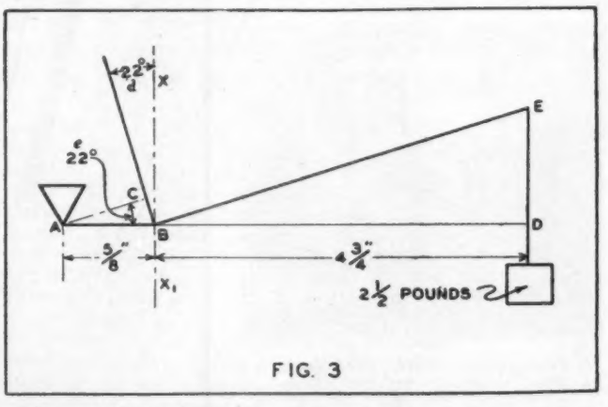


FIG. 3

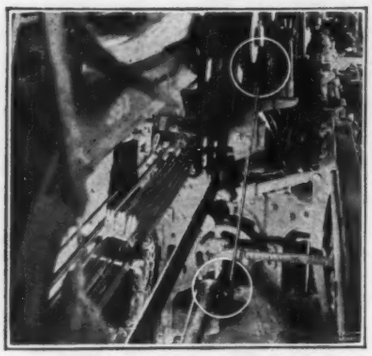
mathematical integrity? No, it can't be that, so I hope one of them will come on and let us hear from him; one of them must be correct.

As everyone has a right to his own opinion, I think I will exercise mine as to which one I think is correct, or rather, which one comes the nearest being correct. For convenience, let us consider the three sketches offered by three former contributors.

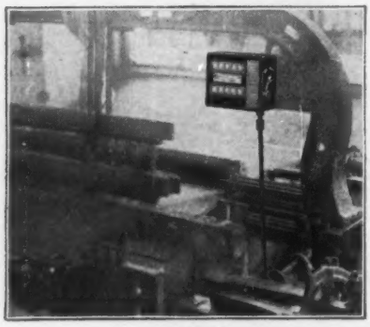
"H. D. M. (S. C.)" used the sketch shown in Fig. 1, claiming the equation for figuring the pressure on the rolls to be, $\frac{2.5 \times 4.125}{.625} = 16.5$ This cannot be correct, for he is considering the fulcrum to be at *B* instead of *A*, and, according to mechanics, this cannot be so, as the fulcrum must be a stationary, or rather fixed point.

Now where "H. H. (MASS.)," in Fig. 2, the only difference in the sketch I am using and the one used by "H. H." being that I have added the dotted lines *AB'* and *B'B* in order to show the method of figuring the distance *AB*) gets the perpendicular distance from *A* to the center line of the stirrup equal to .685 of an inch, I can't see. If he figured it according to his sketch, and assuming the horizontal distance from *A* to *B* to be the same as in the other sketches, ⅝ of an inch, he would get, $\cos e = \frac{AB'}{AB}$, and, as $\cos e = 30$ degrees, *AB* would $= \frac{.625}{.866} = .721$. Then, if he figured it according to the sketch in Fig. 3, he would get, $AC = \cos 30 \text{ degrees} \times AB = .866 \times .625 = .541$.

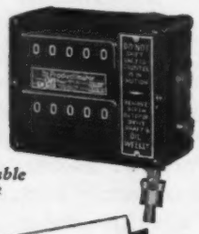
The sketch, Fig. 3, and calculations of "F. A. F. (N. C.)" look better to me than any of the rest. How-



Productimeter Pick Counter applied to Stafford Loom in a large cotton mill.



Productimeter Double Deck Loom Pick Counter on a well known loom, showing cam shaft drive with connecting rod as desired for efficient operation.



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THE SPEEDOMETERS OF INDUSTRY

ever, I would like to know how he gets angle d equal to 22 degrees. Does he assume this?

I think a little more discussion along this line would do us all a lot of good. Come on, I am anxious to know who is right.

CONTRIBUTOR NO. 4613.

Preventing Double Picks Without Feelers.

EDITOR COTTON:

In the January issue "CONTRIBUTOR NO. 4127" asked a question concerning the prevention of double picks on automatic looms without feelers. This just simply can't be done. It can be done no more than a man with an automobile can start his engine without a self-starter unless he cranks it by hand, as the feeler was invented to stop double picks and mispicks, and I will try to explain why.

I will presume that the loom in question is a Draper loom. If so, the filling fork is at the left-hand side of the loom and the battery is at the right-hand side. The double pick is caused by the bobbin becoming empty when it is on its way from the side where the battery is located—the right-hand side—to the filling fork, which is at the left-hand side of the loom. Now when the shuttle starts back across the loom it will be empty and will not place any filling in that shed, and when the full bobbin is transferred to the shuttle, the shed will have changed to the same shed in which the filling ran out, so that as the shuttle travels from the side where the battery is located to the side where the filling fork is located, this pick of filling will be in the same shed in which the last pick of filling was left, thus causing a double pick. The only sure remedy for this is a feeler.

Our mill recently went through this experience of trying to prevent double picks on looms without feelers, but the trouble was finally remedied by putting on feelers, and now this mill has such a demand for its goods that we have orders ahead, whereas in the past, these looms were short of orders on account of unsatisfactory goods, and were idle for a large part of the time.

With regard to snarled ends of filling coming into the cloth at the transfer of the quill, this could be caused by the cutter in the temple being broken, or the spring on the cutter might be broken, and if so the cutter would not be returned into position to cut the filling after a bobbin had been changed, and the length of filling attached to the end of the battery, instead of being cut by the temple cutter, would be snapped as the cloth was weaving down, thus causing the snarled ends of filling to go into the cloth at the transfer of the filling.

A. G. (MASS.)

EDITOR COTTON:

In the January issue of COTTON there was published a question by "CONTRIBUTOR NO. 4127," who asked for advice on how to prevent double picks, as well as snarled ends of filling coming into the cloth at the transfer of the quill. He is weaving sheeting on automatic looms without feelers.

Filling feelers are the thing that I would suggest to remedy this trouble as they will cause the quill to be changed before the end runs completely out. If the conditions are such that they do not warrant this expenditure, I would suggest that he use double-filling forks. Filling forks would help to a certain extent in eliminating this trouble.

A. W. (ALA.)

Still Another Organization for 70s

EDITOR COTTON:

In recent issues of COTTON there have appeared various organizations, or lay-outs for making 70s combed yarn. "CONTRIBUTOR NO. 4101" in his corrected lay-out makes a wonderful improvement over his first organization, but even at that, I think that this can be improved.

For our convenience, I will give his latest organization for 70s as it appears in the April issue:

Machine	Weight or Size		Draft
Picker	10.5	ounce	4.38
Card	33	grain	139.20
Silver Lap	380	grain	1.74
Ribbon lap	380	grain	4.00
Comber	49	grain	51.49
First drawing	55	grain	5.34
Second drawing	60	grain	5.50
Slubber	.50	hank	3.60
Intermediate	1.25	hank	5.00
Fly Frame	4.50	hank	7.20
Jacks	14.00	hank	6.20
Spinning	70.		10.00

In commenting upon his layout, will say that I think his picker lap is on the light side, though not to any great extent, but his draft at the card is too long, which, combined with a light lap, makes the card sliver too light. From this light sliver he is practically forced to make a light ribbon lap for the comber. Following the comber, which for once I will agree with him as being normal, he uses short drafts on both his first and second drawing, but for what reason, I cannot tell.

I wonder if it is too much to ask "CONTRIBUTOR NO. 4101" to explain why he goes heavier on his drawing frames and then has to use longer drafts on his roving frames to again reduce this heavy sliver.

In my opinion, he could still improve his drafting on the roving frames, as he uses 5.00 on the intermediate, which is all right, but he uses 7.20 on the fly frame, which is longer than the draft on the jack, it being only 6.20. Again I ask, why?

In passing comment on the long card draft, I would like to call his attention to the well known fact, that by using a long draft, the feed roll goes slowly, and therefore, the fibers are held longer by the feed roll, which allows the teeth of the licker-in to pass through the fringe of cotton many more times; also, to the fact that by using a light lap, the number of teeth passing through will be relatively greater, due to having a lighter or a thinner lap, which would greatly increase the number of teeth per fiber. Assuming that he would be using a fairly long staple cotton, this would again give extra combing, as the fibers would be held longer before being released than would be the case in using short staple cottton. Also, being long fibers, they would, in all probability, be smaller in

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diameter and would not require, nor would they stand, too much combing. Of course, this could be overcome to some extent by slowing down the licker-in speed.

Again, taking up the matter of cost. By making a light weight sliver at the card the production would be lower, and the cost would be higher, which in some cases would be of great importance.

I would suggest the following organization for 70s combed yarn, using double roving, and the regular, or normal drafts.

Machine	Weight or Size	Draft	
Picker	10.5 ounces		
Card	43.6 grains	100	5% waste
Sliver lap	450 grains	1.93	
Ribbon lap	450 grains	4.	
Comber	45 grains	50.	17% waste
First drawing	45 grains	6.	
Second drawing	45 grains	6.	
Slubber	.60 hank	3.24	
Intermediate	1.40 hank	4.66	
Fly frame	4.00 hank	5.71	
Jacks	13.00 hank	6.5	
Spinning	70.	10.77	

This letter has been written with the hope that someone will pass their opinion on it. It may not be perfect, but in my humble opinion, it is a little improvement on the previous lay-out.

Here is a wonderful opportunity for all readers of COTTON to benefit by a few of its readers giving us the results of their own experiences.

CONTRIBUTOR NO. 4568.

Another Lay-Out for 30s and 43s.

EDITOR COTTON:

This replies to your contributor who wanted suggestions for draft and twist for making 30s warp and 43s filling. Since he specifies a desire for cleanliness and breaking strength, rather than high production, I will say that the first thing to consider is the stock. A good breaking strength cannot be produced from poor cotton.

It matters not how up-to-date the machinery is, nor how accurate the machine settings, nor how carefully the stock has been prepared—a good breaking strength cannot be produced from poor cotton. So, the first thing to consider in producing a good breaking strength is good cotton. However, assuming that "CONTRIBUTOR NO. 4157" has Good Middling 1-inch cotton, I recommend the following lay-out:

Breaker laps, 14½ ounces per yard, producing a finisher lap 11-ounce, with a draft of 5.75.

Card sliver, 46-grain, draft 100, six per cent waste.

First drawing, six ends up at the back, producing a 46-grain sliver, with a draft of six. Finisher drawing same as first drawing.

Slubbers, .74-hank roving with a draft of 4.00, and .95 turn of twist per inch.

Warp intermediates, double creel, producing 1.94-hank roving, with a draft of 5.25, and 1.70 turns of twist per inch.

Filling intermediates, producing 2.22-hank roving, with a draft of 6.00, and 1.80 turns of twist per inch.

Warp speeders, producing a 5.68-hank roving, with a draft of 5.84, and 3.02 turns of twist per inch.

Filling speeders, making a 7.30-hank roving with a draft of 6.35, and a twist of 3.50 turns per inch.

Warp spinning, making 30s yarn with a draft of 10.72, and 26 turns of twist per inch.

Filling spinning, making 43s yarn, with a draft of 12.28, and a twist of 24 turns per inch.

L. L. (S. C.)

Spindle Speeds for 30s and 42s on Draper No. 2 Spindle.

EDITOR COTTON:

In answer to "CONTRIBUTOR NO. 4136," who wishes to know the correct spindle speed for a Draper No. 2 spindle, on 30s warp and 42s filling, I am somewhat like Will Rogers—all I know is what I'm doing and how I'm doing it, and then sometimes I doubt myself, for every day something comes along that puts some of my experience on a back shelf.

We are on 28s to 30s warp yarns, and we use a 1-inch middling cotton with a 1⅝-inch No. 1 flange ring, spindle speed 9,200 r.p.m., front roll speed 112 r.p.m., 6/0 traveler. This is regular warp wind.

On 43s filling, we have a 1 5/6-inch No. 1 flange ring, with a spindle speed of 8,600 r.p.m. and a front roll speed of 104 r.p.m. with 14/0 traveler.

TAD (GA.)

EDITOR COTTON:

I wish to answer the question you published, "What is a good productive speed for the Draper No. 2 spindle on 28s to 30s warp, and 38s to 42s filling 1¾-inch rings on warp and 1⅜-inch rings on filling, using 1 to 1/16-inch cotton."

The speed of spindles depends largely on their condition, but assuming that the spindles are in first class shape, I would suggest a spindle speed of 8,800 r.p.m. for the 28s to 30s warp, and a front roll speed of 114 r.p.m. for warp wind; if filling wind is used, I would suggest the same spindle speed for the front roll speed of 117 r.p.m. For the filling numbers given, with spindles in good condition, I would recommend a spindle speed of 8,000 to 8,40 r.p.m. For the 38s filling, I would suggest a front roll speed of 105 to 108 r.p.m. On the 42s filling, a front roll speed of 97 to 100 r.p.m. produces slightly above the average for this number. However, my frames on 40s are making a spindle speed of 8100 r.p.m. and a front roll speed of 106 r.p.m.

As I stated in the beginning, the spindles should be in good condition. If, on the other hand, the spindles are crooked, the points of the spindles worn off, the wicks worn off the bolsters, the bolster step not adjusted to the proper position, the bobbins not fitting the spindles, the rings worn too badly, then the speeds given are too high. Another thing which needs careful consideration, is the atmospheric condition. In other words, the proper humidity.

CONTRIBUTOR NO. 4138.

EDITOR COTTON:

I am pleased to reply to the question of "CONTRIBUTOR NO. 4136," who asked in a recent issue for opinions as to the most productive and satisfactory speed

for a Draper No. 2 spindle. He uses this spindle on 28s to 30s carded warp with a 1¾-inch No. 2 flange ring, and on 38s to 42s carded filling, with a 1⅜-inch No. 2 flange ring.

My better judgment and the information that I have collected at different times, tells me that the following speeds would not be far wrong for the equipment which he seems to have. For his warp, I do not think he would gain anything by going over 9,000 r.p.m. on the spindle, for if he does go above this he is sure to suffer more than he can possibly gain. With this speed he should be able to get from 104 to 108 r.p.m. on his front roll.

For his filling, I should say that he should not try to go above 8,000 r.p.m. and with this speed he should be able to get from 104 to 108 r.p.m. on the front roll under very good conditions. This refers to either warp or filling wind for warp, but I should think that he would be able to reach it easier if he were using filling wind for his warp yarn.

L. P. (N. C.)

Causes of Shrinkage in Cloth.

EDITOR COTTON:

Recently in your paper a contributor asked what there is in slashing, spinning or weaving that makes goods shrink, and what are the best practices to reduce this to a minimum. He referred especially to shrinkage in filling. The weave, sley, pick, twist and the counts of the warp and filling all have an effect on the contraction. The coarser the warp yarn, and the higher the sley, the more the filling is going to contract. A good rule to determine the approximate warp contraction is to multiply the picks per inch by 3.5 and divide the results by the count of the filling.

The position of the sand roller is a determining factor in the differential between the cloth width and the reed width. The nearer the sand roller is to the fell of the cloth, or rather the less the distance that the cloth has to travel before it reaches the sand roller, the less the contraction.

If the loom can be run with less weight, it will give a greater cloth width, as the warp ends will do more of the bending, and the filling less. The tension of the filling yarn in the shuttle would cause the cloth width to vary slightly. This would be noticed more in the width of the selvages, but I would not alter this. If the temples are not functioning properly, so as to spread the cloth enough, the cloth will be too narrow. The cloth should begin to contract when it leaves the temples.

I do not believe that a change in the slashing or spinning procedure would result in a wider cloth. If less twist were put in the filling yarn, it would give a greater cloth width, but this would be impracticable.

It is possible for a man to use the wrong reed for the desired cloth width. Assuming that the temples and shuttle drag are all right, I would try running the loom with less weight, and if the desired cloth width is not obtained, I would use a different sley reed so as to give a greater reed width and keep the number of ends the same.

S. C. (MASS.)

How Should We Train Help?

EDITOR COTTON:

Will you allow me just a few words in regard to training new help? This subject has been brought up before now, but I don't think we can study it too much, for to the writer it is the most important subject confronting the overseers and superintendents today.

To often, we older men are overheard bemoaning the fact that the younger generation is lazy and no good. I wonder, when we say these things, if we include our own children. And again, I wonder if we ever assume any of the responsibility for our neighbors' children being no good.

I am telling you now that the overseers and superintendents are more to blame for the younger generation being no good than are the parents themselves. Why? Because at home, the child has been taught to do altogether different work from that in the mill, and no doubt has done it well, but in the mill, the work is altogether different. He, or she, is put on a job, without the proper training and instruction, and consequently, does not get along so well and so becomes discouraged and indifferent. Then the overseer comes around, or sends his second hand around, and the child is balled out for not doing something it was never taught to do. Instead of taking pains and time with the child and trying to make something out of it, the child is classed as no good.

As an example, I have a boy 14 years of age, who has been exceedingly smart at home. His mother says that he is more help to her than all the other four children combined. The school teacher gives him a good report; in fact, he has finished the ninth grade this year. Well, I put this boy to work in the mill, and within a couple of days I went around to his machine and said,

"Son, how are you getting along?" He looked up at me, and with great big tears in his eyes said,

"I can't run it." I looked at him and saw in him the image of his father when a boy, and, by the way, on the same kind of a machine his old dad ran about—well, I will not say how many years ago—and it seemed to me almost like his feelings were transferred to me, and as I looked in his eye I could realize how he needed encouragement, just as I had needed it years ago, and I said to him,

"Let your old dad show you how," and as I ran his machine for him and explained it to him, his countenance changed, and as I would expertly handle it I could see the admiration in his face. After staying with him some little time I gave him a friendly pinch and left him.

That night at the supper table I asked him again how he was getting on, and with a bright smile he said,

"Fine," and said, "Dad, I was not shown how to handle that machine like you showed me," and as he sat there and told how expert dad was I could see his mother's eyes dance with pride, and old Dad's chest swelled just a wee bit. Now the boy is tickled over his job, and says he is doing fine.

If I should tell this overseer that he was unfair to my boy he would say that the boy was no good, and

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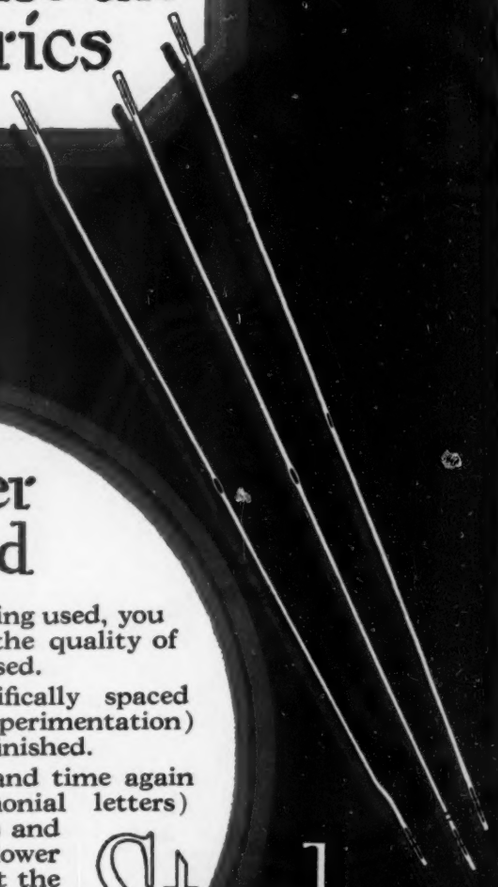

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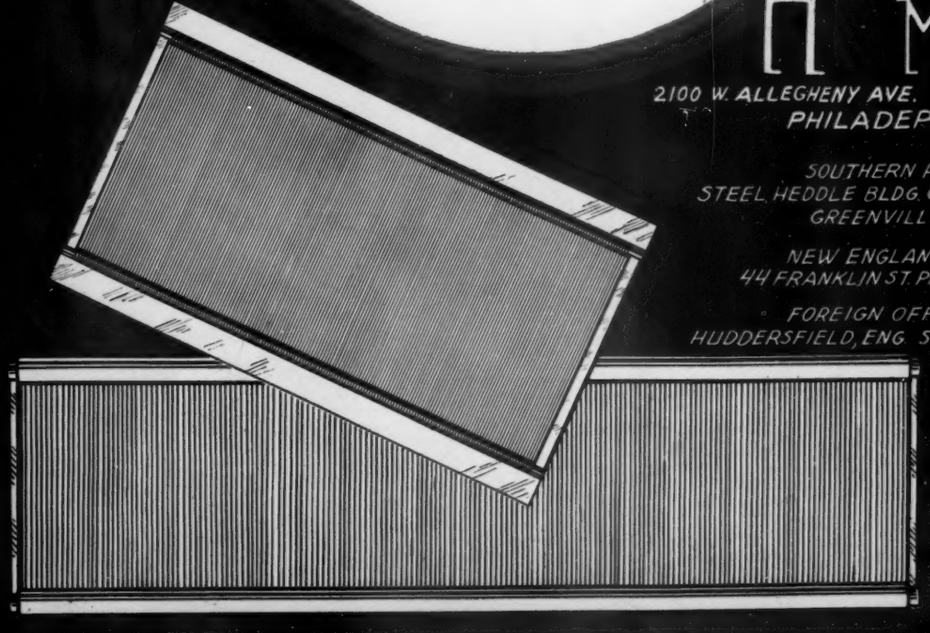

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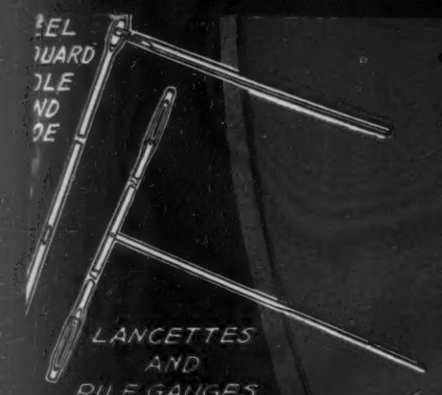

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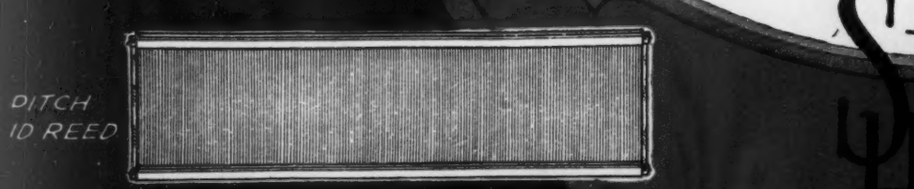

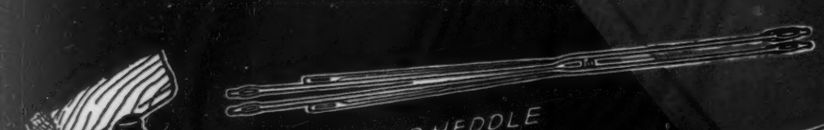

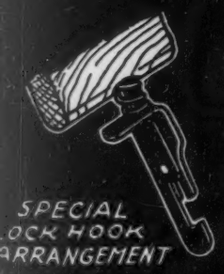

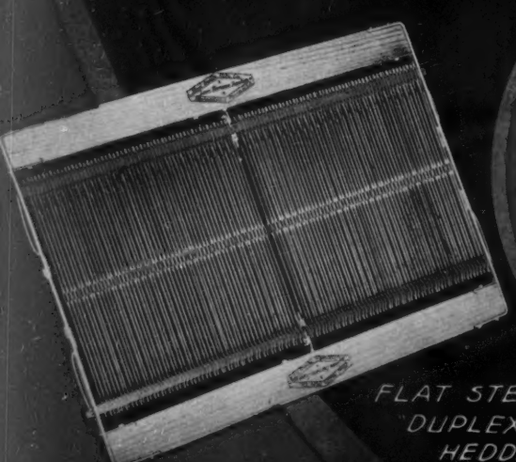

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he could not teach him, whereas he did not tell him; in fact, he merely pointed out the machine and had another boy to teach him.

Very often new help will be put on machines, with someone to teach them, and the overseer never pays any attention to them until he is ready to try them on a machine, and, to his amazement, finds that they cannot run it. Then he says they are dumb, and puts them on a sweeping job.

I tell you, until we overseers and superintendents give things, and people, our personal attention, we cannot hope to have up-to-date help.

If I have ever made any success, it has been due to following things up and checking up on them to see that they were done.

How disgusting it is to speak to an overseer about anything and have him say,

"I told him to do so-and-so." Ask him if he checked up on it and he will say, "No. I thought he had sense enough to do it."

I remember, when a boy, my superintendent in jacking me up one day told me he had to raise me and by H—— he was going to raise me right.

Since growing up, and more especially since becoming superintendent, I can see just what my old superintendent meant, and can realize the importance of it.

If we would all look after the raising of the children, and more especially in teaching them on their first jobs, we would not have so much room for complaint.

My parting word is, that we should all make a special effort to train our help properly, and forget that word, "No Good."

L. H. (N. C.)

A Method of Drawing-In Fancies.

EDITOR COTTON:

In reply to the questions asked by "CONTRIBUTOR No. 4151" in the April issue of COTTON on drawing-in fancies, I will tell our methods, for, as every one else, we think "our way" the best.

We use two hooks for drop wires and harness—these two hooks being fastened in one handle. For a right handed drawing-in hand the hook on the right is about 3/32-inch longer than the one on the left; thus the drawing-in hand is able to reach the drop wires on separate rods, or harness eyes on separate harness at the same time.

We have found it more convenient to have drawing-in hooks divided into sets, using short ones for the drop wires, and longer ones for a few harness—the length of these for the harness being governed by the number of harness used, the larger the number of harness used, the longer should be the hooks. For the reed, we use one hook with a bend on the end but no eye.

If all the yarn is of one kind, one color, and on the same beam, then we use one strip of card clothing and one comb. However, if we do not have the above-mentioned conditions, for each extra color or number of yarn on the beam we use two leases, one rod being used for each extra color or number, and, where we have extra beams one extra comb for each extra beam.

Our right handed drawing-in hands begin on the right-hand side and the left handed ones on the left-hand side.

CONTRIBUTOR No. 4598.

A New Loom Drive and Control.

OF INTEREST to weaving mills is a new development known as the "New Era Electro Device" for loom control, for use in connection with individual motor drives on looms, and for controlling the operation of the loom. The patent is held by New Era Electro Devices, Inc., and, it is understood, a loom set up and equipped with this system is in operation at 255 East Main Street, Chattanooga, Tenn., where an inspection may be made by those interested.

The inventors explain that the heart of the system is a magnetic automatic cut-out switch, which controls both high and low voltages; the transformer for low voltage being an integral part of the switch. This, the patentees point out, eliminates a most serious and expensive trouble, the breaking of the delicate wires used in small transformers. They state that the switch is vibration-proof and may be bolted to the framework of the looms; the switch occupies a small amount of space, the case is smooth with no projecting handles, etc., permitting easy cleaning.

The various stop motions—warp, filling and live frog—are electrical and are operated with practically no moving parts, it is stated, and with extremely low voltage, six to eight volts.

In this system, the clutching action of the regular friction clutch on the loom is eliminated, the friction and gear being fastened together, and the loom is started and stopped by means of a push button which starts the motor direct across the line after each loom stop.

The manufacturers point out that the warp stop motion, being electrical, is so arranged that when the loom stops owing to a broken warp thread, the shuttle is always in the left-hand box with the harness level and ready for the thread to be drawn in. It is understood that this is accomplished by the use of a wooden roller fastened onto the cam shaft. Brushes connected with the electrical mechanism rub against this wooden roller as the cam shaft revolves. A piece of metal about one inch wide is inserted in the periphery of this wooden roller, and when the drop wire acts, the contact of the brushes with this metal segment stops the loom, and the mechanism is so adjusted that when the brushes contact with this metal segment, the shuttle is supposed to be flush in the left-hand box as indicated, according to the description of the manufacturers.

The breaking arrangement of this system, as described by the inventors, is also interesting. It is understood that the regulation brake wheel of the loom is grooved, and that a V-shaped rubber belt is suspended below the wheel. One end of the belt is connected to the electrical mechanism, and in stopping the loom, the V-shaped belt is pulled against the groove in the brake wheel, stopping the loom, the manufacturers

REDUCING COSTS By RAISING WAGES

The textile industry must face two diametrically opposite forces. 1—The absolute necessity of competing with the low priced foreign goods made by labor receiving only a fraction of the American wages. 2—The rising standard of American living conditions which form a competition between industries for labor and are gradually raising all wage scales.

A Carolina mill executive says in Cotton:

"The weakest and least competent operating executive in the industry can reduce costs by cutting wages, which may at times seem to be a necessary step for existence, but it is the strong, far-seeing and intelligent man who can reduce costs by raising wages.

"Practically every mill organization will be found to be more or less honeycombed with jobs for which the pay is low, and the help that fills these jobs will be found to be the most expensive and highest paid for the return received of any on your payroll.

"Investigate and you will find they are doing about one-fifth of a day's work and receiving about two-thirds of what an able man's pay should be. Send them home and put one man on the two jobs and give him three-fourths of the pay received by the two of them. Then stop and think what you have accomplished.

"1st. You have reduced the cost of manufacturing.

"2nd. You have increased the quality and quantity of the work done.

"3rd. You have improved the personnel in that department.

"4th. You have improved the working atmosphere by introducing an element of alertness and energy as opposed to two elements of inertia.

"5th. You have placed the able and capable operatives in a better position to take care of those in their family who are not able to work.

"6th. You have raised the average pay received by your operatives.

"7th. You have raised the standing of the industry in the eyes of the public."

The above is true—the solution at one point lies in the Labor Extension System of removing the unskilled work from the skilled worker, so allowing him to do more and better skilled work.

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state, with high efficiency, but gradual action.

The inventors point out that with this system of loom drive and control, it is possible for a weaver to stop and start the loom while in the warp alley, without the necessity of returning to the cloth side of the loom to do this. This feature, it is pointed out, is of especial interest in connection with various forms of extended labor systems, in which the weavers operating a large number of looms must spend more of their time in the back alleys.

Weaving Rayon on Automatic Looms.

EDITOR COTTON:

In my estimation, the main problem of weaving rayon filling, on Draper automatic looms is due mainly to the shuttle, and the way the filling is packed on the bobbin.

The trouble with the majority of the mills of today is that they are trying to pack too much filling on one bobbin, thereby losing the tightness that is essential, especially when the battery doffs.

In weaving, where the shuttle is changed by hand, it is understood that the more filling packed on the tube or bobbin the better, provided it will weave.

Now on an automatic loom, it is not important as to the amount of filling placed on the bobbin, because of the fact that the bobbin changes alone, without losin the pick, and it is only necessary to keep the batteries filled.

The best bobbin for rayon filling in a Draper shuttle, is six and a half inches long, which gives the proper leeway of one and a quarter inches from the end of the bobbin to the shuttle-eye.

The shuttle should be made in proportion to the length of the bobbin, which means that a rayon shuttle would be shorter.

You may ask why I stress so much the importance of a leeway of one and a quarter inches. The answer is simple. Because it eliminates *shiners* in the cloth.

The shuttle must also be supplied with cat-fur or Muskrat fur, running along the sides, in order to keep the tension running evenly. It is also necessary to have hair bristles about a quarter of an inch from the small end of the bobbin, one over and one under. Place these bristles at a 70-degree angle from the side of the shuttle toward the center, with a slight tendency toward the apex or eye.

This will be understood better upon studying the illustration. The best hair bristles are of camel-hair. Of course this is all for the weaving of rayon filling.

An enameled bobbin with small ridges (three to an inch) is the best for this sort of work. The ridges must raise above the body of the bobbin, and not be dug into it, because a 24-filament rayon filling is very catchy. So you will see that ridges dug in would be out of the question. You will also see that it is very important that the hair bristles and furs should be placed correctly in the shuttle.

It is very important that the bobbins be absolutely true, and directly in line with the eye of the shuttle, because if they are the slightest bit out of the way, the result will be shiners in the cloth. I have had weavers operating eight to ten looms on Leno with rayon filling, on Draper automatics. I have also had weavers running sixteen Draper looms on Chinese silk 22/26 and 14/16.

Now, in preparing the Draper loom for the weaving of a rayon warp, it is necessary to apply a flannel strip to the raise-board, because otherwise the shuttle will flatten the yarn, and the result will be a marked space about a foot from the selvage, which is somewhat similar to a shiner space.

Some concerns, as you know, take the lay completely off the loom, and then apply the flannel. It is not necessary, and a good man can place a flannel on the raise-board at the rate of four looms to an hour.

J. M. (R. I.)

Running Colored Stock in the Card Room.

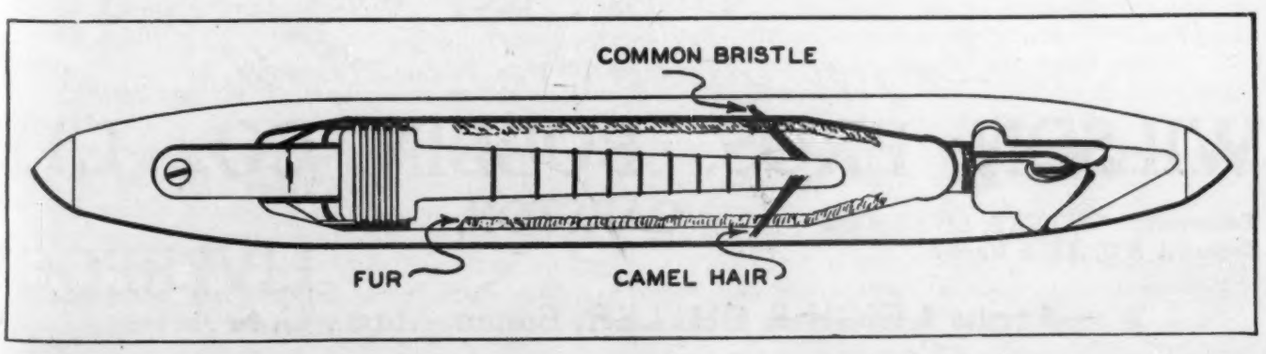
EDITOR COTTON:

In this letter I wish to offer to our enthusiastic friends of the discussion department, a few remarks dealing with a subject which, by the way, I have never seen covered in our valuable inspiration, COTTON. This minute attempt comes from the writer through a chance acquaintance with a young man, and also, the latter's difficulties in his department in the cotton mill.

In passing, the reader must know that the young fellow aforementioned, is a good cotton carder, but until recently, he had never handled any other but ordinary stock, in its natural state and color, and passing through the usual processes from picking to the finished roving for spinning.

However, the company which employs this young carder, at different periods, requires several batches of colored stock to be run through the same machinery as the ordinary stock for spinning.

Anyway, coming to the real point, the carder got his first batch, and, by the way, one of the worst colors to deal with namely, black, which to many fellows



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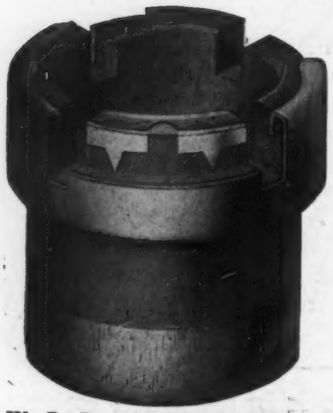

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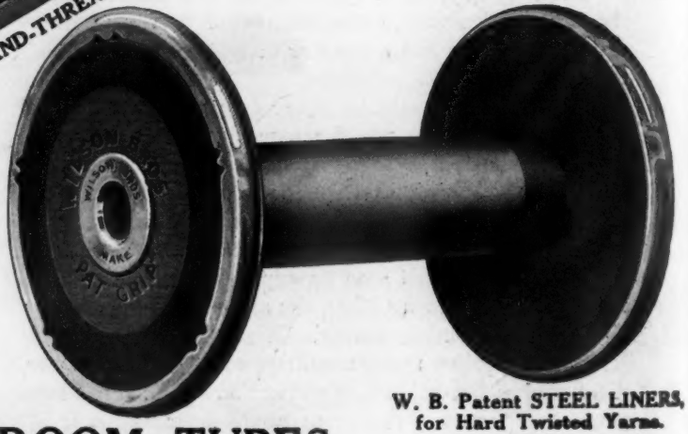

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would give plenty of cause for discouragement, if, as in this case, their experience in this class of work was lacking.

The order, it seemed, called for several thousand pounds of yarn, hence, quite a few bales of this stock had to be passed through the carding department, and all of the stock had to be broken up by hand, in order to feed the breaker-picker.

The regular stock is fed to the picker through a pipe, by means of a fan from a picker house about two hundred yards away, but colored work was to be fed as aforementioned.

However, this carder had the whole of the stock broken up and loosened as much as possible before attempting to feed any of it to the breaker. By the way, at the mill, where all this took place, the picker system is not a very up-to-date layout, and the cotton is just passed from the hopper to the vertical opener and beaten by a pair of two blade beaters to make a breaker lap.

Now, our friend was ready to "put it over" on his first colored job, and the hopper was filled with the loosened cotton and the machine started. The picker-tender was waiting patiently at the front of the machine to secure the first chance of passing the sheet of cotton around the calender rolls to form the lap, but the cotton did not come as expected, but, instead, the pipe leading from the stripper-roll to the vertical opener, was blocked, and this occurred several times, until the writer's attention was called to the difficulty, and he promptly informed the carder that the evener roll required to be set closer to the apron, hence a lighter feed to the Creighton vertical opener. This was done and the machine started again and one more difficulty presented itself, this being that the stock would only pass along through the pipe to the opener periodically, the cause of which plainly asserted itself, namely, a shortage of draught from the fans for this heavier class of work.

At this point, naturally the young carder thought the fan speeds ought to be increased, but to save work and trouble, the writer had the good fortune to think of a very simple and useful thing in such cases. The trouble we know, was shortage of air current sufficient to draw the black cotton through the process; then why not try to push it along?

There is an air line and hose in this room, so this hose was simply applied, with the air on full, to the air inlet pipe to the vertical opener, and that cotton did certainly hustle, because the missing amount of draft, or "push" had been supplied, giving great relief to our friend, by enabling him to make his breaker laps for the finished lappers.

All the trouble in the first process overcome, the writer inquired of the carder as to what he intended his finished laps for the cards to weigh and was not surprised by the answer which he got.

Now, remember that cotton dyed black has become very heavy, in its every fiber, hence the whole nature of the stock is practically changed, but our friend the carder thought because he had to produce the same hank roving with the black as he was doing with his regular stock, that he ought to make finished laps like the latter in every way.

However, experience is the only true school of learning, and in that school the writer has been taught that in making finished laps from colored stock, we should always go lighter than with regular work. So, instead of a 15-ounce lap the weight per yard of finished laps was reduced to about 13-ounces, and, furthermore, he was advised to make laps, first on one finisher from four breaker laps, and to have the laps which were made on that machine run on another finisher in fours to make the final finished lap for carding. The reason for this procedure is to procure as near as possible, a softness, or more bloom in the finished lap, because this is very important if trouble is to be avoided in the cards, drawings, etc. Also, by adopting the aforementioned method, the possibility of split laps is practically eliminated, and moreover, after processes do not become so troublesome, as in the case where the stock has not been treated right in the picker room.

After giving our friend a few extra hints, the writer left him to carry on, and afterwards learned, that with little difficulty apart from changing of draft gears at the drawings, all went well with the colored work, and undoubtedly, the young carder benefited by the little experience.

Now probably a brief description of some obstacles encountered when running colored stock, and remedies for them might prove to be of some little benefit to our friends.

Of course, anybody who has to deal with cotton dyed in the bale, and who has the job of having to make a roving from it, knows by the examination of its lumpy, harsh and matted condition, that to secure an even roving the process of evening the condition must start as soon as possible, and that is in the picker-room as previously outlined.

The writer has known of cases where carders, and superintendents too, ignored the latter principle, with serious results, such as several sets of bad roving having to be cut off after having tried everything on the frames to make it run.

By making laps for the cards lighter, and doubling as stated, we eliminate the possibility of over-loading the fillet of both cylinders and doffers, and also avoid lumpy sliver. When laps are made in good shape, colored stock will give little, if any, trouble on the cards.

On the drawings with certain colors which may be caused in the dyeing, there are times when coiling will give any amount of trouble, and uneven sliver will not always coil as desired.

However, when this trouble presents itself at the drawings, it is always well to insure that the coilers are well cleaned, especially in the tube, as colored work is sometimes apt to cling to any rough place.

If coilers cleaned as stated will not do the coiling, then try worming the coilers thoroughly.

Probably the latter idea will be successful sometimes, and with certain colors, but there is one last recourse if no other will do, which the writer knows will overcome this difficulty of coiling.

First of all, it would be advisable to determine the reason for this failure of colored sliver to coil into a can after passing through the drawing rolls.

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Apart from lumpy sliver being the cause, sometimes a sliver cannot overcome the current of air caused by the whirling of the coiler, when passing through the coiler tube because it presents a certain stiffness compared to undyed cotton, and as before stated, it is more liable to cling rather than follow through the tube, and thereby overcome the upward pressure of air in the tube.

Now the best way to overcome this trouble, and it always proves successful, is to procure cans almost full of other sliver or waste, and place these under the coilers, bringing up the waste loosely to the coiler, just sufficiently close to it to prevent any air current from getting into the coiler tube. By doing this, it will be found that about a third part of a can full of sliver can be run, and this can be transferred to other cans, making up full cans, as required.

At the slubbers, the writer has realized one thing, namely, that leather rolls are best for running any colored work. Cork-covered rolls cause a great deal of trouble through the stock sticking readily to them, hence, the clearers fill up quickly and pieces of clearer are taken through the rolls very often causing breakages. With leather rolls, there is not any of this sticking and the clearers pick up the shortest fibers.

The usual experience on the slubbers with colors is that the roving will run tighter than the regular with the same tension, although the same hank sliver is in process. The writer would not always change the tension gear, but simply take one turn off the flyer pressers, and this helps out considerably. This may also have to be done on the intermediates, sometimes.

In the fine roving frames little trouble will be experienced if all remedies are applied as the writer has put forth in his own small way. No doubt there are some of our friends who have already tried some of these ideas, or better ones, but again there may be others who have struggled along with colored work, when by knowing a trick or two, they would have been better off with the knowledge.

Another fellow of the writer's acquaintance had not the good fortune to have a friend by his side, like the young carder mentioned in this letter, and he made a hopeless job out of a special order. He rushed it through the pickers, cards and made the sliver so heavy, and lumpy, with the result that he could not get it to the intermediates.

So the whole secret it seems, in putting colored stock over, is to be sure of softness, even laps, in addition to light card sliver, and carefulness at the drawings.

In conclusion, the writer is hoping that some reader will benefit by his simple story. D. E. (R. I.)

Atwood Opens in the South.

The Atwood Machine Company has selected Charlotte, N. C., as the newest of their branch locations. This branch will be under the direction of J. E. Fairbrother, Atwood's southern manager. Mr. Fairbrother has been affiliated with the home office and sales force for the last fifteen years. Like the Wilkes-Barre branch, recently installed by the company, the new office in the South will be located in the center of the mill community where access to immediate service will be henceforth available.

Are you

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FEDERAL Penetrant really is a combined softener and penetrant—giving remarkable results in dyeing.

This is the most efficient pine oil penetrant on the market, as users will testify. It wets out cotton goods instantly, thus enabling them to absorb the dyestuffs evenly. It prevents foaming in piece dyeing with sulphur colors.

It does not make raw stock sticky, but actually improves its spinning qualities because it replaces the natural fats and waxes of cotton which are removed in the dye-bath. When used in the dye-bath on hosiery no further softener is required.

We are glad to furnish on approval a trial barrel including the service of our technical staff to demonstrate its proper use. You are under no obligation. Write for further information.

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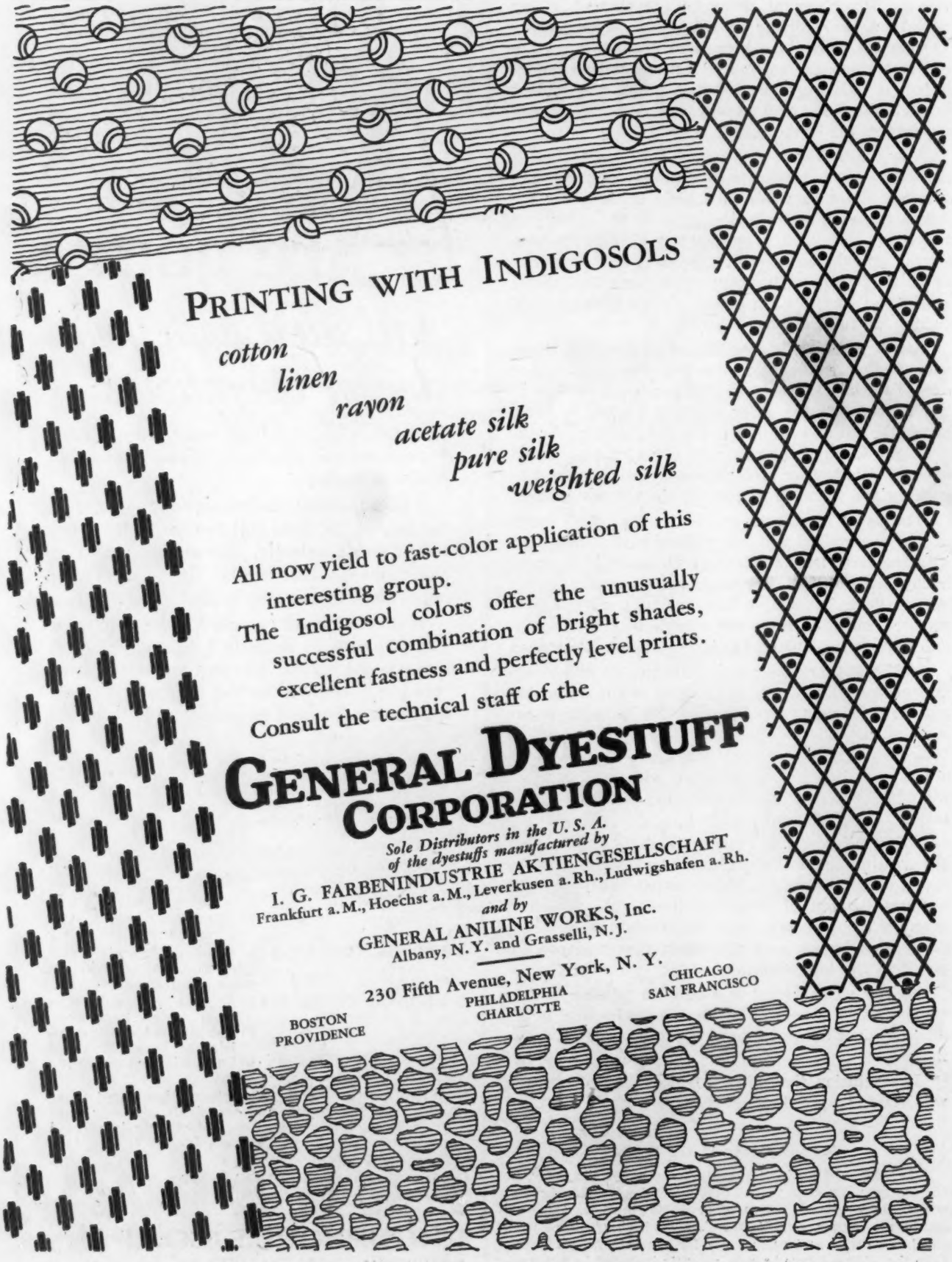

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Some Trends in Industry

THE problems of managing human beings, of being an overseer, are about the same in all kinds of industry. We therefore feel this address of Alfred Kauffman, President of the Link-Belt Company, Chicago, Illinois, will be of interest to our readers. It was presented before the Sixth Annual Convention of the National Association of Foremen, at Indianapolis, recently.—The Editor.

"ADVANCING waves of other people's progress sweep over the unchanging man and wash him out."

That statement, made by Mr. Kettering of the General Motors Corp., several years ago, is as true today as it was 35 years ago when as a boy I entered the shops of the General Electric Company at Schenectady, N. Y.

During those 35 years, four were spent in machine shops as an apprentice, three years as a student in engineering, and 28 years with the Link-Belt Company. With that as a background, I hope with some degree of interest to tell you about "Some Trends in Industry."

But before we dwell on the present day situation, let's project ourselves back to the work day of 1894 and thereabouts, when we passed through the check-in gate at seven in the morning and out again at six in the evening, with one-half hour for lunch.

"In the Old Days."

Those were the days when the workman bought his own wooden wash-pail, soap and towel, which he kept under his bench, and hauled out a few minutes before quitting time providing the foreman or "super," wasn't looking. If luck was with you, you got home by seven; if you missed your car, no telling when you reached home. There were compensations, however; if you were tired and needed a little nap, all you did was to set your planer, shaper or lathe to cut the air, and your buddy tipped you off when the boss's feet were heard. No piece work, bonus or premium. Some contract work in rare cases, but mostly a flat day rate, and not so very much at that. Quantity and high quality of employee production, at lowest possible unit cost, meant nothing to the average employee then. He knew little of the customer's side of the picture—seldom shared in any of the gains, consequently was interested only in putting in a day's work.

Of course, some of us boys made a little money on the side which helped swell our weekly pay. We carried lunches and beer to the men. A long pole in each hand held about 20 pails, so you can figure yourself what we made.

And in those early years we had every so often our nice little strikes because one or the other of us didn't want to do this or that, and as we all sympathized with each other, we quit, sulked, lost our pay, and finally came back, all because the fellow that hired us thought he was boss and we thought we were boss—when all the time neither of us was boss—but we hadn't learned yet that "the buying public is the boss of us all".

THAT is why the air in the various departments of textile mills is artificially impregnated with moisture.

Cotton, silk, or worsted yarns absorb moisture and become stronger. The fibres lie more nearly parallel in the preliminary operations of carding and drawing thus making it possible to spin yarn of more uniform quality.

But, you can't maintain relative humidity at a constant degree unless room temperature is controlled!

Condensation of moisture through the lowering of room temperature is serious. You get roof drip, and this *may damage fabrics in the loom.*

The Sylphon No. 11 REGITHERM

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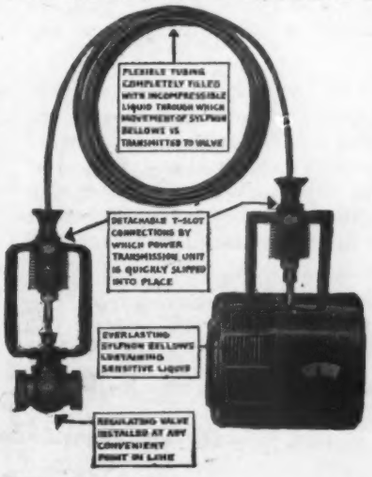
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Now the man-made cocoon is spun

and product inspection begins

AFTER long, involved chemical processes, man at last sees his own created textile. The "cocoon" of rayon yarn, removed from the spinning bucket, is the climax of hundreds of chemical controls. Wood-pulp, water, and various chemicals have been purified, refined, blended, and ripened in process after process under continuous chemical control every hour for days and days.

The essential qualities of the spun yarn—strength, uniform denier, dyeing qualities, and "hand"—all are determined in these complicated cellulose chemical processes, before and during the actual conversion of the viscose solution into rayon filaments. After the spinning, little can be added to rayon quality that has not been put there in these chemical processes.

Now begins the long series of product inspections. Each "cocoon" of rayon, as it is removed from the bucket, is carefully scrutinized. Any that show the slightest imperfection are immediately discarded.

But product inspection can eliminate only imperfect yarn; it cannot improve the quality of rayon. That is a matter entirely of chemical skill and experience in cellulose chemistry. And nothing short of actual use of the finished rayon fabric or of an elaborate chemical test can determine whether or not the producer of the rayon yarn knew enough and practiced enough cellulose chemical skill and control.

Which is precisely the reason why the most careful weavers and knitters prefer du Pont rayon. Du Pont—for years makers of such cellulose products as modern explosives, Pyralin, Fabrikoid, Tontine, Cellophane, and Duco—are THE cellulose chemists. Du Pont became rayon producers because of their facilities for, knowledge of, and experience in cellulose chemistry.

Since *your* reputation depends so largely upon the basic qualities of the rayon yarns you weave or knit, to whom can you trust these all-important chemical intangibles more confidently than America's leading cellulose chemists? *Du Pont Rayon Company, Inc., 2 Park Avenue, New York City.*

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No matter what position we hold, workman, foreman, superintendent, manager, president, or what not, let us fail to give or to make good products, then see how quickly we'll be called to account for our work by the buying public.

Of course, the waves of progress taught us that millions were wasted in unnecessary strikes—we also learned that many losses were due to neglect on the part of the manufacturers to give the same consideration and attention to the human element of their factory as they gave to their machinery. The employees learned also that the employer was their agent who found purchasers for the product of their labor. So between the two we learned that many years of labor were needed in order for a worker to recover his wasted savings, or for the manufacturer to replenish his loss.

Treat 'em rough, and tell 'em nothing, was not very far from the true relationship between management and employees in manufacturing plants in the early days.

The underlying point of view was that a firm hand, together with a withholding of all except the most meager information about the business, was necessary in successfully handling factory men.

The Situation Today.

Today, just exactly the opposite views are held by executives whose function is the handling of employees. Men today want to know what it's all about. They are intelligent enough to comprehend the facts, and to use them constructively, and it's good business to give them the information.

Old customers are the backbone of any business. If we keep them satisfied with price and quality and delivery we will have less customer turnover. When these facts are brought home to employees, it will stimulate them to appreciate that their performance has a direct bearing upon the marketability of the product. Losses and wastes invariably are reduced by the arousal of interest. So I say again, consider the factory employees as part of the sales force, and tell them everything.

It hasn't been so long since we wiped out the white-collar complex—the false barriers between office and factory employees, which used to worry many executives. What was more galling than to have an office man walk through the shop and look down on the man in overalls.

And when it came to sports, like baseball, golf, or any other games, can you picture a white-collar man and an overall man from the same company playing on the same nine, or in the same foursome? But time has brought a democracy in manufacturing organizations which has changed all this.

It wasn't an overnight job. It has been a long time developing. It has grown so slowly that some of us little appreciate both its present extent and its possibilities for good in modern management.

So during all these years in which the waves of progress have swept on, and made a distinct evolution in industry and industrial management, the un-

Extra service but no extra cost ROCKWEAVE canvas products

Designed for the hardest use there is—for the wear and tear of the textile industry—Rockweave canvas products give extra service in *every* industry. That's why there was a sweeping demand for them from the start. The line was rapidly extended, and now there are Rockweave canvas baskets, trucks and hampers built for every purpose.

Frames of specially tempered spring steel. Top rims bound with chrome leather. Casters, handles, hinges, eyelets, shoes, truck-boards of special design and extra strong. Coverings of our own Triumph Duck, to give longer, harder wear. All of these features are incorporated in designs that have proved the best for the particular service specified. As a result, Rockweave canvas products are in a class by themselves . . . in everything but price. Like all Rockweave products, they are priced right in line with the market.

All standard sizes of baskets, trucks and hampers are carried in stock, ready for immediate shipment. Special sizes to meet your requirements will be made and shipped promptly, at reasonable prices. We have prepared a catalogue with illustrations of the complete Rockweave line and descriptions of its uses. Won't you write for it?

Rockweave Mills

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"THE 'buyer beware' idea was changed by John Wanamaker more than sixty years ago when he guaranteed his merchandise and offered 'money back' if the purchaser was not satisfied. Offering fast-dyed fabrics wherever obtainable is a continuation of this policy.

"It is true economy on the part of the public to buy fabrics, the colors of which as well as the quality, will last.

"To say that their use is governed only by the life of the fashion is a pit-fall that will lead to disappointment, for fading colors and poor quality have a habit of revealing their tawdriness very quickly. Merchandise sold by Wanamaker must meet the test of continuing satisfaction."

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E. I. DU PONT DE NEMOURS & COMPANY, INCORPORATED, DYESTUFFS DEPARTMENT, WILMINGTON, DELAWARE

changing man has always been washed out of the picture.

Big Organizations Today.

Modern business is organized in such large units today that in an ever-increasing number of cases, men who twenty-five or thirty years ago would have been in business for themselves, are today important factors in large corporations. Men with high qualifications devote their talents to marketing, production, accounting, or some other phase of the company's business, but irrespective of its many ramifications, the fundamental principles underlying business success, are few in number and simple in character. To start with, the object of being in business is to make profits, and the index of success is the ration of the profits actually earned, to the real profit making possibilities of the business.

Having determined what these profit making possibilities are, the next step is to ascertain what the causes are, which contribute to failure to realize these potential profits.

We must find out to what extent this failure is due to manufacturing inefficiencies—to excessive sales costs—to short sighted or incorrect company policies —to defective accounting methods—to ineffective or inadequate advertising, or to still other conditions.

Bear this in mind—mergers of small companies into one large company provide no substitute for competent management. After they are set up and operating as a unit, their earnings, as in any other form of business, depend entirely on the sound judgment and foresight of the management.

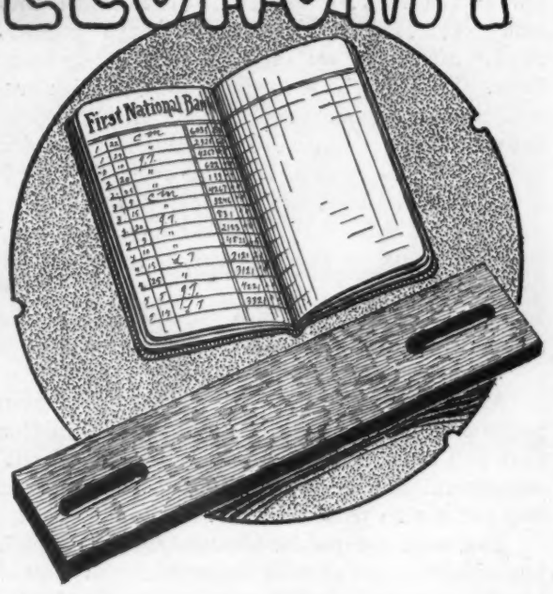
But, with big business and mergers, an entirely new condition was created. Industry instead of belonging to the privileged few, is passing into the hands of the many. Today there is an army of employee-owners in every large organization. Does not this put an added responsibility on the management? The passing of a dividend becomes a serious matter, if the action hits the pocketbooks of the workmen, foreman, superintendent and company officers. Also workers now part owners of their companies are beginning to have a better understanding of the duties and difficulties of management.

Now what part do we play in this picture? Most of us in this room are interested in the manufacturing end. What proportion of the failure to get the best out of our plants can be pinned on us? We all know that an industrial plant is only a mass of junk unless some one is around to see that the bricks, mortar and machinery become tools of production. And that takes human beings.

Men Are Most Important.

There may be all kinds of trends in industry, mergers, consolidations, and what are sometimes called vertical trusts, or history may bring about the cutting up of the big units into small ones again, but what will always be needed will be men to do things. Men are not such certain quantities as money, materials and machinery. A machine will do a known quantity of work in a known time. A man will do such work as he is willing and capable of doing.

ECONOMY



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Men, then, are the most important factors in the conduct of any business. And what difference does it make whether we mention this before a gathering of foremen, salesmen or executives, when the cry is always the same. Forget the title tacked onto our names, and look at it from the big opportunity standpoint. Men grow by having responsibility laid upon them. You may be a foreman today, and a superintendent or manager tomorrow. The same applies to the workman under you. In a sense you are his manager. Encourage him, let him know that he has a chance to get ahead, and that his chance lies in himself, and you will get further than any scheme of profit sharing, bonus, or welfare work, though they all may be very helpful.

The chance to say "Yes" to the question "Am I getting on" is what appeals to most men.

You men here who are foremen—

Are you not the business managers of your department? Would you or could you do differently than you are now doing, if you were able to put your department in a separate building, on a different lot, and put a sign with your name over the door?

You were not picked because you had a pull. As business manager of your department you were chosen because you had certain definite qualifications. You were a good workman, a master craftsman. You understood the "know how" of the business, and you know how to get along with people.

You know better than I do the many petty things that come up during the day or week, the burden of which must be borne by you. You know the most important factor is maintaining high quality and low cost. Why tell you anything about the direct loss due to spoiled work, or that rush jobs are always more expensive than regular jobs?

You need new men in your shop. Either you, the foreman, or the employment man must hire them. Both of you are poor salesmen if you cant' sell the job to the prospect, because, remember the man who asks for employment is a buyer of a job, and if you need him it is your business to sell him one.

Some of you may, but all of you should, know more about the practical knowledge of manufacturing economies and accounting—have a clear insight into such overhead items as equipment depreciations—tool cost—scrap charges—supply costs—supervision and inspection charges, and the like—in their relation to direct charges and total costs.

But more important than all is a working knowledge of *human beings.*

Bear this in mind: Every man pays for the amount of bossing he requires, and likewise every man's wages increase in proportion to his ability to act as a boss or foreman of himself and others. The lower the wage rate, the greater the amount of watching and direction constantly required. The highest wages are paid to the man through whose ability the largest number of other men may be profitably employed.

I want to say this in conclusion:

Competitive industry today isn't a social or charitable affair—it is a conflict, and leadership is required to bring success.

It takes "guts" to stay in the game.

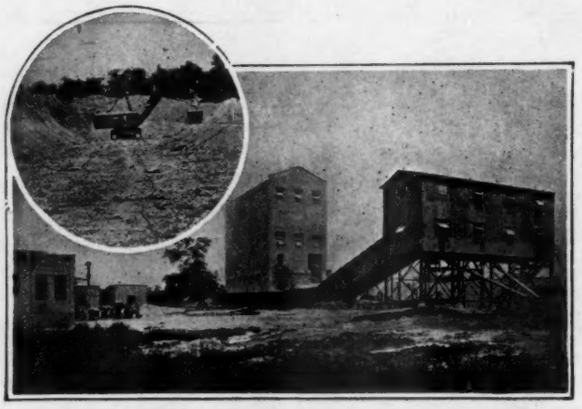
Some of us who handle men succeed only in proportion as we intelligently direct the work; that is, as we get intelligent work from the men who work with us.

So I repeat what I said at the beginning—the opportunity is here—if we don't take advantage of it, then the advancing waves of other people's progress will sweep over us and wash us out.

Birmingham Slag Has New Plant.

The Birmingham Slag Company have just completed a modern crushing and screening plant to take care of two blast furnaces recently installed by the T. C. I. & R. R. Company at its Fairfield works.

The new plant, which is now in full operation, is



shown in the accompanying illustration. The plant embodies a large number of new and modern features for efficiency and economy. It is electrically operated throughout and has a daily capacity of 2,000 tons. The Fairfield plant is the fifth modern crushing and screening plant to be operated by the Birmingham Slag Company.

New Equipment at N. C. State

The Textile School of North Carolina State College, at Raleigh, N. C., which is considered the most modern equipped textile school in the South, has added much new equipment during the past year.

The carding and spinning department was augmented by two Foster cone and tube winders; the Universal winder which was exhibited at the Southern Textile Exposition, and a Breton Minerol oil spraying apparatus, made by Borne Scrymser Company. In addition to this equipment, a card was clothed with Platt's metallic card clothing; a 180-spindle spinning frame was equipped with S. K. F. ball bearing spindles, and new cradles and cots for Casablancas system of spinning. In the knitting department a Scott & Williams spiral floating knitting machine and an Oswald Lever bottle bobbin winder were added. In the weave room, a Cooper-Hewitt lighting system was installed.

New Officers Elected.

The stockholders of the Lombard Iron Works & Supply Co., Augusta, Ga., announce the election of the following officers: Mr. J. G. Belding, president; Mr. A. W. Rigsby, treasurer; Mr. S. Donald Fortson, secretary. They also announce the election of the following directors: George S. Lombard, S. A. Fortson, I. S. Ferguson, J. G. Belding, and W. A. Rigsby. The president announces the following appointments: Howard M. Leitner, superintendent; J. L. Burford, cashier; E. J. Hanahan, manager, mill supply department.

Southern Textile Meeting Report.

(*Continued from page* 1125.)

made a thoughtful address, discussing present conditions in the industry and suggesting means for the operating executive in carrying out his responsibilities. A. H. Cottingham, general manager of Victor-Monaghan Company, and J. B. Harris, vice-president, Greenwood Cotton Mills, Greenwood, S. C., spoke briefly, both emphasizing the importance of personal contact with employees.

Mr. Marchant's address was most timely and convincing, and is reproduced in part in the following paragraphs:

Address of T. M. Marchant

"No industry can succeed when the production far exceeds the demand, and while all mill executives dislike to curtail their production, it should not require year after year for the manufacturers of cotton goods to realize that with changes in styles, and the desire on the part of the consumer to use a large quantity of goods made from materials other than cotton, that their production must be brought nearer in line with consumption. While changes in styles have been going on, the mills in general have not only been unwilling to adjust their production, but in many instances have steadily increased their output.

"The workers in our cotton mills are just as good Americans as anybody. The best blood of the country flows in their veins. They are the people who made this country, but you and I realize that they are sometimes easily mislead and it is our duty to be fair and square with them in all our dealings.

"Why shouldn't the worker be laboring under the wrong impressions, as well as the general public, when we, as business men, operate our mills both day and night, push for production, and run through the noon hour? If we put ourselves in their place, we would think as they do: that the cotton mills were enjoying prosperity to the fullest extent.

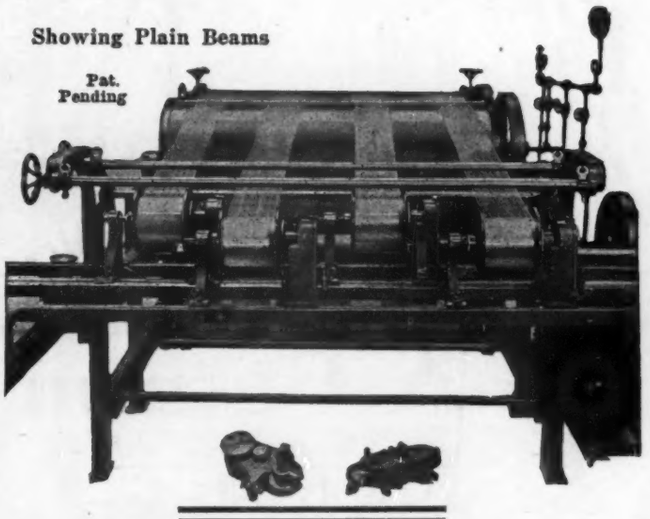
"There is considerable unrest in the textile industry today in many sections throughout the South. May I ask you the question as to what is wrong? From past experience, will not the records show that when misunderstandings occur, it is far better for employer and employee to sit down and discuss together their differences, rather than to seek the services of outsiders, who poison their minds with untrue promises and, in many instances, destroy the genuine friendship that has existed over a period of many years.

"On September 1st of this year I will have been connected with the textile industry thirty years, having an intimate knowledge of mill conditions, knowing personally many of the workers in the mills I am connected with, meeting with them in their community and school houses, spending week-ends with the key men at our summer camp, which was provided altogether for the comfort of our employees.

"I stand before you this evening, not as one who is ashamed but rather one who is proud of the wonderful progress which the mill executives in the South have been able to make throughout the mill districts in

Showing Plain Beams

Pat. Pending



Johnson Improved Warp Sizer for RIBBONS

WITH this machine warps can be made, sized, and beamed direct from creel in one operation—they can also be sized from beam to beam or from beam to spool. Any number of spools or beams of any type or width can be used depending on the width of the machine.

Each unit is independent and can be adjusted separately for width and tension—regardless of diameter. And can be removed or installed readily.

This improved feature is especially designed so that it can be attached to *any standard Johnson Sizer now in use.* It may be purchased separately.

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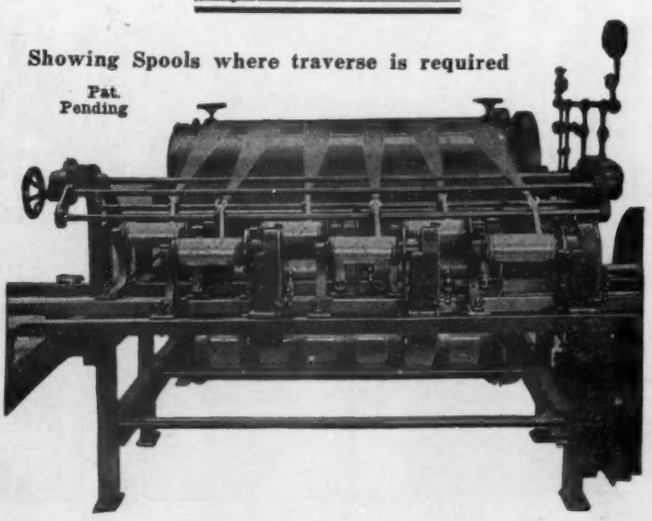
Showing Spools where traverse is required

Pat. Pending



A German Coppersmith *and* Modern Civilization

Five hundred years ago, John Gutenberg, coppersmith of Mainz, Germany, developed a process of making metal letters, introducing to the world for the first time, a method of printing. Gutenberg made little use of his experiment, printing a copy of the Bible, and a couple of pamphlets.

The world of his day had developed somewhat from the caveman age, but it was still composed of small cities and groups, widely separated, none aware of happenings outside their small circle. Columbus and his followers had not yet shown that the world was not flat, and that there was no dropping off place after you got so far out into the sea. If Columbus had preceded Gutenberg, it is likely that his discoveries would have been slow in spreading, for there were no means of spreading information, except by messenger, and word of mouth.

Today, millions of dollars are invested in printing equipment to bring you each day a picture of what is going on throughout the world. Your daily newspaper brings you the news not only of your next door neighbor, but also of the other side of the ocean. By means of the printed word, labor saving devices and new inventions are passed along for the general use of everyone in the civilized world. Through the passing on and the development of these inventions, we have grown to an enlightened and industrial civilization with telephone, telegraph, radio talking pictures, electric servants, swift transportation by land, water and air.

W. R. C. SMITH PUBLISHING COMPANY, with five industrial and business publications, devoted primarily to the upbuilding of the South, brings to 55,000 employers and employees of businesses and industrial plants each month, not only new ideas from others engaged in similar work, but also new equipment and devices of over 900 advertisers.

A staff of editors and advertising men are searching for new ideas for you at all times, because, the advancement of all South is dependent upon the advancement in its individual plants and establishments, and upon the part you personally play in building them up.

W.R.C. SMITH PUBLISHING COMPANY
ATLANTA, GA.

Publishers of

COTTON SOUTHERN POWER JOURNAL SOUTHERN HARDWARE
ELECTRICAL SOUTH SOUTHERN AUTOMOTIVE DEALER

these later years, regardless of the teaching of the agitator and professional politician who would not hesitate to destroy this industry and throw out of employment hundreds of thousands of workers.

"May I ask you the question, what will become of hundreds of thousands of workers if this industry is put out of business? You know just as well as I do that a large number of the families living in cotton mill villages today were driven from the farms where they were no longer able to make a living.

"I am not afraid of the kind of socialists nor the Communist Party that has been working through the Gastonia section. This is a Christian country we live in, and when these agitators teach social equality, the foundation of their belief being built on the destruction of life and property, being against the teachings of Jesus Christ, I say to you in sincerity that when the time comes for such people to take charge of the textile industry, in the South, here is one man who will step out.

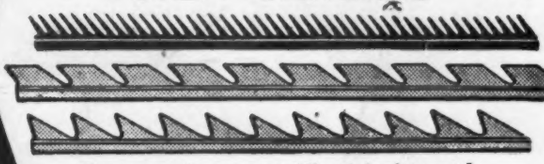
"I believe in treating the employees fairly in every way, and when the mill managements have done all they can, considering their financial ability, if the employees are dissatisfied with the best that can be given them, they have a perfect right to look for work elsewhere that will pay them a higher wage, but they have not the right to take charge of property which has been built with funds from citizens of our States, assisted by outside capital.

"Sooner or later the mill executives must face the question squarely with reference to the working of women and children at night. Wouldn't it be one of the most forward steps our mill executives could take if we should stop employing them at night, and change the working age of children from 14 to 16, giving no permits, nor allowing any one to work under 16 years of age? We are looked upon today as employers of children, when we all know that the labor of children in the cotton mills is the most expensive. In the mills with which I am connected, we have 3,242 operatives on our payroll, and only 112 of these, or less than 3½ per cent., are under the age of 16 years, and none under 14 years of age.

"Looking back over many years, we realize that no industry has ever succeeded until it was properly organized to carry on its work. The Cotton-Textile Institute is a part of your organization, and it has been trying to serve the industry. Shall we not ask the question, whether we have wanted to be posted or not? Statistics are useful when they are used in the right way. Have we, as business men, used the information given us as we should? Other industries have succeeded by using the information and carrying out the plans suggested by their institutes. What have we done? We have reached a time when we must give careful attention to the real conditions of the industry, or else admit that we are not competent as mill executives and business men, trained in our line of work, to carry on to success one of the most important businesses of our country.

"One of the most forward steps our manufacturers could take throughout the textile districts would be to put in operation a general export and advertising program, having sufficient funds to insure the success

PLATT'S
Metallic Card Clothing and Serrated Wires for
COTTON, WOOL, AND SILK CARDING



You can do away with stripping and grinding ENTIRELY by installing Platt's Card Clothing. They also deliver a larger per cent of sliver in less time —making them a profitable buy.

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Steel frame construction and patented rigid traverse motion.
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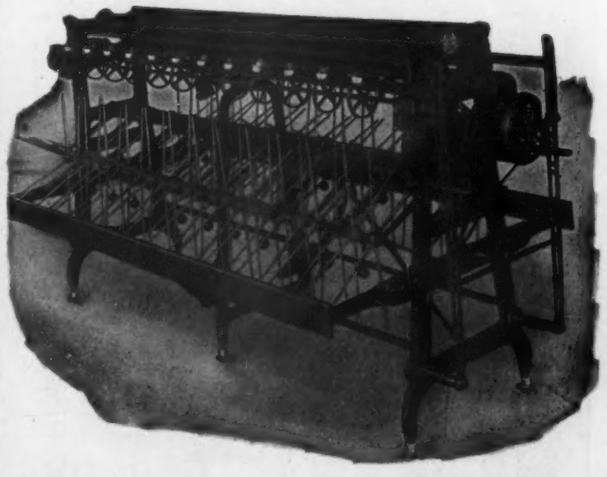

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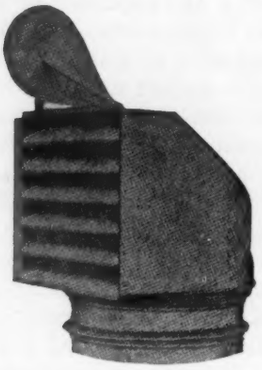

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thereof, such funds to be raised on a fair basis to all mills.

"The Cotton-Textile Institute should have full authority in working out the proper organization to use these funds, in finding and establishing export markets and advertising cotton goods to the public throughout the nation.

"For the purpose of financing such a program, let each mill be requested to contribute annually the equivalent of $1.00 per bale for each bale of cotton consumed in their mill, or on some other basis that would be fair and equitable to all mills. This would only be a mere pittance of twenty points increase in the mill's cost, or less than an average of 1/16 of a cent per yard, whereas records in the past show that from time to time mills and their selling agents have been so anxious to be able to say that they are sold ahead, that they did not hesitate to quote a price ¼ of a cent, ½ of a cent, and many times 1 cent per yard below market quotations which, in many instances, were less than replacement cost.

"Such a program outlined above would raise more than six million dollars annually, based on the consumption of cotton for 1928. Even if fifty per cent of the mills would join in such a program, it would no doubt prove a very wise and profitable investment, as well as assist materially in helping the textile industry, which is one of the most important in this country, to soon take the place it deserves in the business world.

"So much is being said today, and many comparisons have been made, as to our wage scale with that paid in northern and eastern states.

"Why shouldn't the manufacturers adjust such differences as rent on the mill cottages and other conveniences on a basis that is fair and equal, including the increase in the pay envelope?

"The southern cotton manufacturers have received no credit whatever for the cheap rent, in many instances water and lights, as well as other advantages which have been given in the past.

"The comparisons then would no doubt be on a more equal basis, certainly if you take into consideration the average weekly wage, if figured on full time operation, not merely using the total number of operatives on the payroll, which shows a large percentage of spare workers.

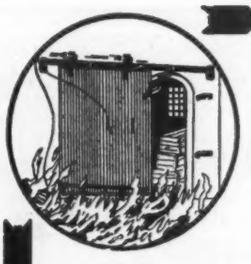
"In checking over two of the large plants with which I am connected, some weeks ago, I found that in one we had over thirty-five per cent more workers on the payroll than we had jobs.

"The other plant showed over thirty per cent extra workers.

"Such conditions make it necessary to send out regular employees so these spare workers can at least get a few days' work during the week.

"Much has also been said in the press and by speakers about the southern cotton mill village, but common sense tells us that progress is always made gradually.

"It is our duty as leaders to let our operatives and public know the real living conditions in the southern cotton mill. Our people have the advantage in individual homes, free from the soot and grime of the city streets as is the case with almost all industrial workers throughout the world.



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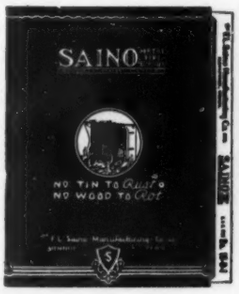

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Only efficient tapes can create economy —tapes that possess those inherent qualities of strength and long life. Barber Spinning and Twisting Tapes are the most economical on the market—evidenced by the number and character of the mills using them exclusively.
BARBER MANUFACTURING CO.
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World Leaders in the production of spinning and twisting tapes for all kinds of cotton machinery.
BARBER
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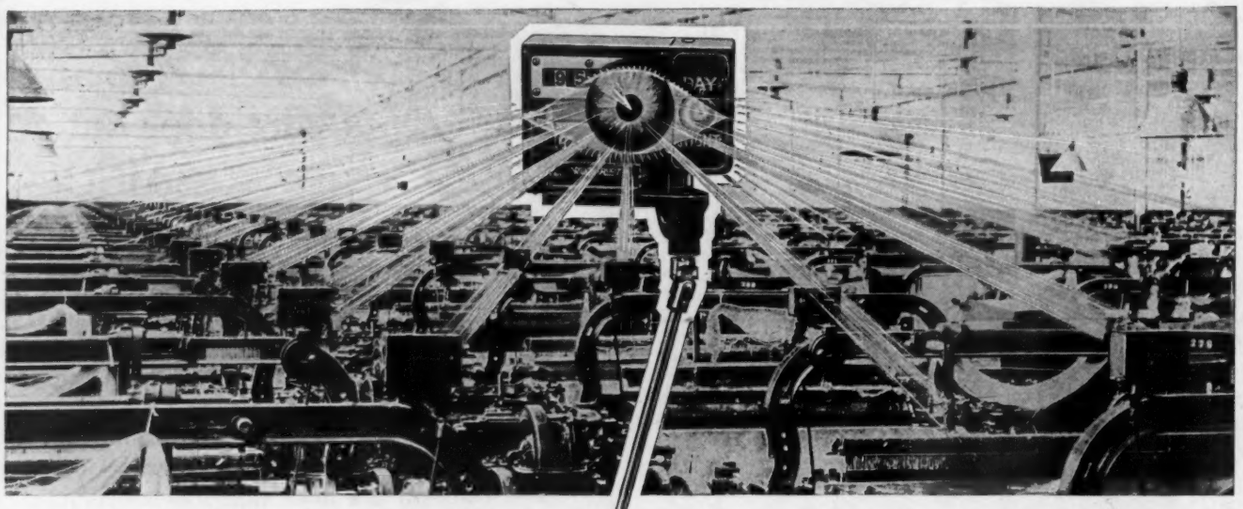

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The Pick Counter sees *which* looms are busiest; which ones produce too little. It sees which weavers are working hard, and sees that they get what they earn—by the pick. Would you like to see the effect on output? Then ask for a *trial installation.*

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WASHBURN Wood Top Rolls give a higher tensile strength to yarns with less end breakage. And they eliminate cockles.

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"They also have advantage of being near their place of employment, and the question of continuous employment in the southern millls has never been a problem up to the present time, and while I know that there is still room for improvement of living conditions and surroundings, I am sure that as much progress has been made in our industries along this line as in any other industry in the country.

"Much has been said by those who do not know actual conditions about the paternalism which exists in southern mill villages. How could it have been otherwise? Our industry has been forced to go to mountains and rural sections and employ people who had never been associated with the industry before. It was necessary to bring them together hurriedly in order that the industry might begin operation, and the way in which the people have adjusted themselves to their new surroundings has been nothing short of marvelous.

"The time has now come when we must begin to substitute fraternalism for paternalism and it will be the duty of the superintendents and overseers to act as teachers and leaders of our people in this big transition period. The more we can see of our people socially, the better we can understand their thoughts, actions and motives. The more patience we can show with their short-comings, the better it will be for the industry as a whole and for us as individuals.

"Cotton mill men of the future will necessarily have to know more than how to fix a machine or how to staple cotton. They will have to know human nature and how to deal with it. They will have to be patient enough to listen to those who work for them and with them, and wise enough to advise their workers in the right direction.

"I want to urge upon every one of you the advisability and necessity of a thorough study along this line. Organize your foremen into groups for the purpose of studying the history of our industry and the minds and ways of men, in order that you may be better equipped for leadership and when the crisis comes you will be better prepared to meet it."

Somewhere during the banquet the Editor of COTTON and Clare Draper, together with Dave Cook, Walter Pratt and Bert Macintyre, improvised some so-called music for the entertainment (?) of the diners. No casualties were reported.

L. L. Brown announced the golf tournament prize winners, the contest having been conducted as a handicap affair over the course of the Asheville Country Club. J. B. Shelton, superintendent, Mayflower Mill, Cramerton, N. C., won the prize for low net; second low net prize going to J. A. Jordan. Paul F. Haddock, southern manager for A. Klipstein & Co., won low gross, with Jack Alexander second low gross winner.

At the Saturday morning session of the Association, the business meeting was held, including reports of officers and division chairmen, and the election of officers, previously reported. W. M. McLaurine, secretary-treasurer of the American Cotton Manufacturers' Association, spoke on some of the elements involved in shaping the right sort of personality. Arthur M. Dixon, president of the American Association, and a former president of the Southern Textile Association,

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ROVING FRAMES

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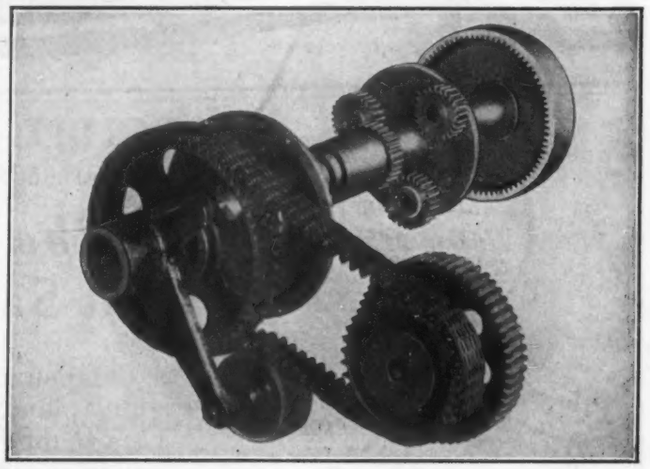

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The standard excellence of Stewart Compounds contributes to any roving frame layouts where they are employed. Inquiries regarding Stewart gladly answered. Write now.

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Contains no Chlorides, no Mineral Salts, and no Mineral Oil.

A Compound that has never given any trouble at the finishing plant. Will give a good increase in tensile strength. This Compound and our Service will give the feel and weight desired.

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brought greetings to the members and commended the work of the organization, pledging his cooperation in any way possible. No reports were made by the code of ethics committee or the S. B. Alexander medal committee. Marshall Dilling briefly discussed the work of The Arkwrights, Inc., the research organization of the Association. The concluding feature of the meeting was the presentation of the retiring president's medal to Carl R. Harris, by Robert W. Philip, Editor of COTTON, on behalf of the Association, in appreciation of the work done by Mr. Harris.

Maintaining Uniformity in Picker Laps.

(*Continued from Page* 1120.)

mately one-half pound, the tender would be required to hold his lap to a variation of from 4 to 6. If the regain indicator shows 9, the lap must weigh between 8 and 10. The operation of this system is so very simple that any picker tender can learn it in a few minutes. The regain indicator is mounted at some convenient point in the picker room where it will be exposed to average atmospheric conditions for the room, and where it can be easily seen by the doffer.

It may be argued that the cotton coming through the pickers will not follow the theoretical regain as indicated by cotton exposed to picker room air for a considerable time, but exhaustive tests have proved that the actual and indicated regain are so close together as to be astonishing. The tabulation of one series of tests as given below will show how remarkably close the indicated and actual regain are to each other.

Indicator Reading --	8.2	8.2	8.2	8.2	7.4	7.4	8.0	8.0
Actual Bone Dry Regain ----------	8.2	8.2	7.7	8.0	7.4	7.6	8.2	8.5
Indicator Reading --	6.9	6.9	8.9	8.9	8.6	8.6		
Actual Bone Dry Regain ----------	6.8	6.7	8.7	9.3	8.4	8.5		

These tests were made by filling a glass jar with cotton and screwing on the top tightly, numbering the jar, and noting on it the reading of the Regain Indicator. The jars were then taken to the laboratory and the cotton subjected to the usual bone dry test. Samples were taken from two finisher pickers at a time, and the results are grouped accordingly above. It will be noted that the actual bone dry regain figures do not vary more from the indicated regain than they do from each other. The greatest discrepancy between actual and indicated regain is one-half of one per cent, whereas there is a difference in one instance of six tenths of one per cent in actual regain between the laps on two adjacent pickers. The indicator seems to have kept a better average of picker room conditions than the cotton itself would indicate by laboartory tests. The proof of the efficacy of this system in maintaining evenness all through the mill lies in the fact that a mill testing it out, ran for months at a time without making a single gear change to hold their numbers.

Where this system is in use, far fewer laps are rejected than customarily. The mill just referred to set back only one-fifth as many laps as they formerly did.

New "HURRICANE"
Master Stock Dryer

for cotton, linters, wool, noils, hair, rags, etc. Many improvements in design and construction make it by far the most efficient machine yet offered. *Maximum* capacity is obtained with *minimum* consumption of steam and power.

Drying action is mild but uniformly thorough. The large volumes of warm air circulated over and through the stock, leave it lofty and light, in perfect condition for subsequent operations.

"HURRICANE" Automatic Yarn Dryers make the yarn strong, soft and elastic.

For imparting moisture regain, "HURRICANE" Conditioning Machines can be operated either in conjunction with the dryer, or as separate units.

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Ideal Drying Every Day
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Better Lubrication at Less Cost per month

It Stays in Roll Necks

Every Spinning Boss knows the trouble caused by oil creeping out of roll necks and getting on the rolls.
This can be avoided by using

TRADE MARK REGISTERED IN
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MODERN TEXTILE LUBRICANT

It won't creep or spread—
Our exclusive process gives NON-FLUID OIL a remarkable adhesiveness that keeps it right at the frictional points.
Naturally NON-FLUID OIL keeps down bearing wear and tear and affords smoother production—besides insuring cleaner yarn.
Worth more—it costs less—for each application of NON-FLUID OIL outlasts liquid oil several times.

Make your own test—write for testing sample and Bulletin, "Lubrication of Textile Machinery."
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If a picker is in good mechanical condition, it will put through very nearly the same quantity of cotton hour after hour, all day. But if the moisture content varies materially from time to time during the day, a great many laps will be off weight on that account, and unnecessarily rejected. The sole object of this system of moisture compensation is to have each lap contain the same amount of actual cotton, within the mechanical limitations of the picker evener.

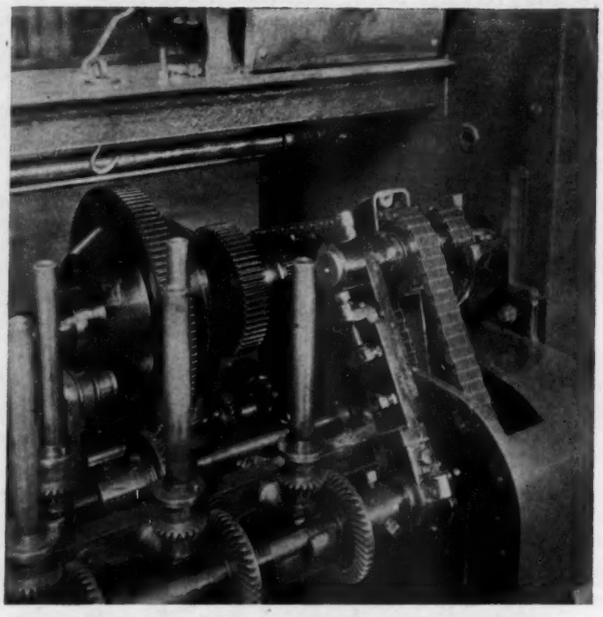
Those mills operating laboratories with moisture control, will find this Regain Indicator invaluable in holding the laboratory to the proper regain. It is well known that different textile products will have a different percentage of regain when all exposed in the same air, even if all are made of the same material. Raw cotton will absorb more moisture than yarn, and yarn will in turn absorb more moisture if soft twisted than if hard. A cabled cord will take up less moisture than a loosely twisted mop yarn, and so on. Consequently, in trying to hold the regain at the proper point in a laboratory for testing any particular product, an indicator that shows the actual regain in the material at any time, is far more satisfactory than any method of approximation, and much faster than having to make oven tests to determine the actual regain condition at any time. In testing tire cord, for example, it is required that the cord be broken at 6.5 per cent regain. If the laboratory is controlled by the usual instruments, it will often be found when the cord is baked out that the regain is not 6.5 per cent, and the tests are no good, so that all the work must be done over. Where this Regain Indicator is used, it will be found that the actual regain will seldom vary more than one-tenth of one per cent from the indicated, and frequently a whole month's tests will not show more than that variation. The advantages of being able to hold laboratory control within such limits can be easily appreciated by those operating laboratories.

The Whitin Chain Drive Horsehead

The new Whitin chain drive horsehead which replaces the old spur gear drive for roving frames possesses many desirable features as stated by the Whitin Machine Works, Whitinsville, Mass. The chain drive is simple and of sturdy construction. A sprocket is mounted on the differential and drives to a compound sprocket which is mounted on two swing arms. From the compound sprocket, it drives to the bobbin shaft. The bobbin rail does not create a slack in the chain. This is taken care of by the two swing arms being anchored at each end and free to swing up or down at the center. The sprockets are mounted on adjustable arms and when the chain stretches, it can be easily tightened from the outside without removing any parts, it is pointed out.

The drive, itself, is enclosed in tight dust proof covers, which completely cover all moving parts. The chain can be easily lubricated by Gits oilers located at convenient places. All sprockets and driving shafts are hardened and ground, thus giving perfect fits at all points.

By eliminating the train of spur gears, the company explains, all backlash is prevented and there is



always an even tension between the differential and the bobbin shaft. By eliminating the gears, the drive is also practically noiseless.

The chain drive is designed to give long and satisfactory service with a minimum of attention. An occasional adjustment of the swing arms and proper lubrication of the chain are all that are necessary, the company states.

Commercial Factors Has Good Half Year.

Commercial Factors Corporation, 2 Park Ave., New York, (formed by the merger of Fred'k Vietor & Achelis, Inc., and Peierls, Buhler & Co., Inc.) has made several important new connections, among which are:

Cooper & DeLuna Corporation, 267 Fifth Ave., N. Y. C., converters of drapery materials.

Thomas Textile Co., 40 West 20th St., N. Y. C.

The new firm of William Mendelson Co., Inc., cotton and rayon fabrics, 241 Church St., New York City, which commenced operations on July 1st, with a strong personnel headed by a former executive of the well-known textile firm of Fried-Mendelson & Company, has also arranged to have Commercial Factors Corporation handle their account.

New Edition of the "Green Book" Out.

The Bragdon, Lord & Nagle Company announces the publication of the 1929 issue of the Official American Textile Directory—the "Green Book." The Directory is published in several editions, and ranges in price from $1.50 to $5.00. The office edition is conveniently bound in a stiff cover and contains a thumb index. The Directory may be obtained from the Bragdon, Lord & Nagle Co., Division of McGraw-Hill Publishing Co., Inc., Tenth Avenue at 36th St., New York, N. Y.

Appointed Southern Representatives.

Clarence L. Myers, Inc., Philadelphia, Pa., manufacturers of quality mercerized yarns and Durene, have appointed the Catlin Yarn Co., Charlotte, N. C., as their southern representatives. J. B. Jackson, who is well known in this territory, will personally devote his efforts to the distribution of these products.

Benjamin Announces Catalog Supplement.

Benjamin Electric Mfg. Co., Des Plaines, Illinois, has published Supplement Number One to Catalog 24. This supplement contains complete descriptions, listings, illustrations and much installation data on recent additions to the Benjamin line.

Knitting Section

NEW The BARE LEG STOCKING!

The idea of Bare Legs appeals to women. But the effect, on themselves, does not please. So, enter the Bare Leg Stocking!

Model K enables you to take advantage of this newest fashion . . .

320 needle—300 needle.

Deliveries of this machine can be made immediately.

Established 1865

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366 Broadway, New York, N. Y.

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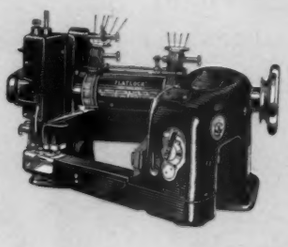
SOPHISTICATED and self-reliant, the young girl of today illustrates these traits in the selection of undergarments. Rayon creations win her approval and patronage if the seaming and stitching conform to the beauty of the fabric.

The vital importance of fine finish is recognized by Willcox & Gibbs. So the Flatlock is the supreme machine for seaming Rayon undergarments properly and beautifully.

The superiority of the Flatlock is established for both men's and women's Rayon undergarments. Manufacturers the world over give force to this fact by extensive use of the Flatlock.

Write our Home Office for samples made on the Flatlock, or submit your own fabrics for sample purposes.

Sole United States and Canadian agents for Cornely and Uniart Embroidery Machines



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"THERE IS REAL ECONOMY IN USING GENUINE W & G NEEDLES"

Preparing Rayon *for* Knitting

A Discussion of Different Methods of Conditioning, Winding, Necessary to Produce Satisfactory Package for Knitting Machine

THE author of this article is in an excellent position to know the problems discussed herein. He gives, in an unbiased way, a complete discussion of the various elements of the subject: the conditioning, oiling, winding, etc.

In a later issue we hope to present a subsequent article dealing with the handling of the rayon on the knitting machine.—The Editor.

DURING the last seven or eight years, there has been a vast improvement in the quality of the rayon manufactured. This improved product, which has caused its widespread usage and popularity, can be attributed to the tireless efforts of the rayon manufacturers and the constructive, but critical, cooperation of its many users in its many diversified fields. It has been within this period that the knitting branch of the textile industries has learned and profited byi ts existence until at the present time, this industry consumes approximately half of the rayon manufactured. It has been because of the advent of this group of textile industrialists to the rayon field that improved rayon has been necessary. The knitting of rayon subjects it to a tension, bending and deformation that is not existent when it is applied to other uses and, because of these severe conditions, the rayon yarn manufacturers have edeavored to supply a product which would be workable and practical when subjected to such treatment. While it has been through the resourcefulness of the yarn manufacturers that the present product has materialized, no small credit can be given those in the knitting industry, who have cooperated in endeavoring to use experimentally improved products and have offered their mills and equipment for experimental work which had to be conducted under practical operating conditions.

However, since the rayon manufacturers and the machine builders have advanced side by side in improved conditions for handling rayon, there is a wide interim from the making of the rayon to its application to a knitting machine. The rayon cannot be applied to a knitting machine without necessary handling, a large part of which is considered as an important phase in the producing of knitted fabrics. Then too, there is a difference in the care required in handling rayon for a machine employing a single end of rayon and for a machine which lays multiple ends of rayon side by side. In the former case a poorer quality of rayon can be used because the variation in size, shape, color and composition is comparable only to itself, while in the latter case any of these variations would be compared to the numbers of ends of rayon in use. It is impossible to obtain rayon without some variations, and it is therefore obvious that one continuous end of rayon would not be subjected to these variations and therefore not as apparent by comparison as six ends of rayon. Then consider the possibility of comparing these variations in twelve, sixteen or even twenty ends and the magnification of the variations of rayon is readily understood. For this reason supreme efforts have been made to obtain a product as free from variations as possible, and it should be to the users' advantage to give the rayon as careful attention as it is given by the manufacturers.

Among the most important variations, exclusive of

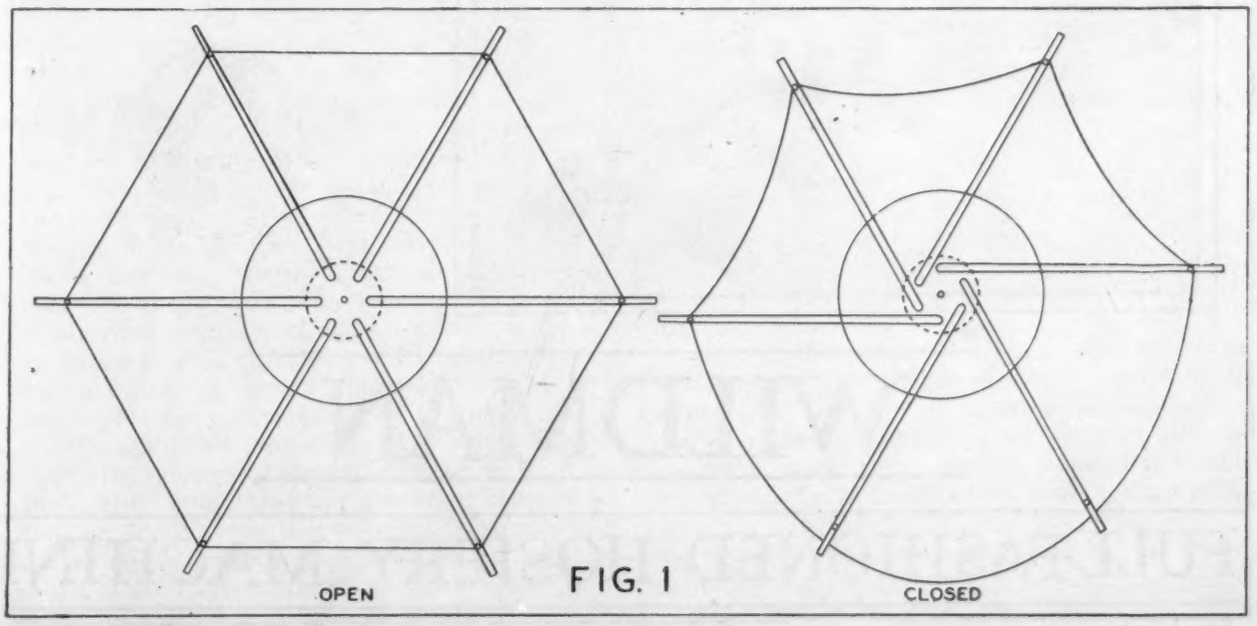

FIG. 1

A GOOD FOUNDATION

The new Wildman Full-Fashioned Hosiery Machine has been built *right*, from the ground up. The *heavy base* upon which the legs rest is one of the principal factors in the elimination of vibration and its accompanying dangers.

Write for further information.

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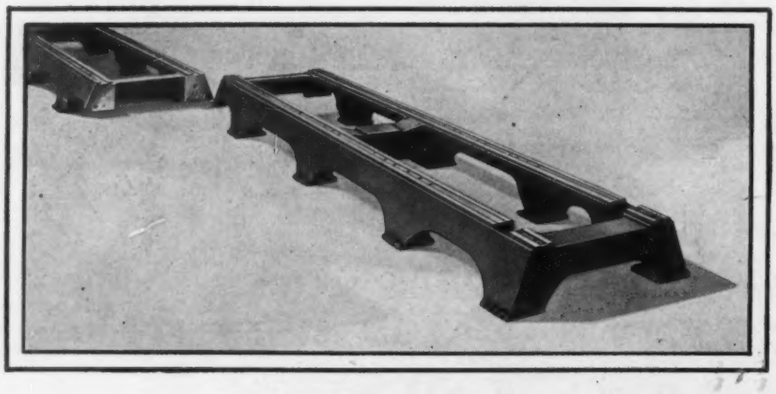

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FULL-FASHIONED HOSIERY MACHINE

those under the control of the rayon manufacturer, are *stretch, moisture content* and *cleanliness.* It is a known condition that rayon is not 100 per cent elastic; that is, should a piece of rayon be stretched (within its elastic limit), it will not contract to its original length. It is therefore only necessary to state that rayon when handled in a mill should be run under uniform tension, and uniform tension cannot be obtained unless every end of rayon possesses the same amount of moisture; for ends of rayon having different moisture contents act differently when being used or handled. Rayon yarn, when handled in such a way that filaments of the yarn are unnecessarily fractured, causes serious variations and injuries to the yarn and reduces the

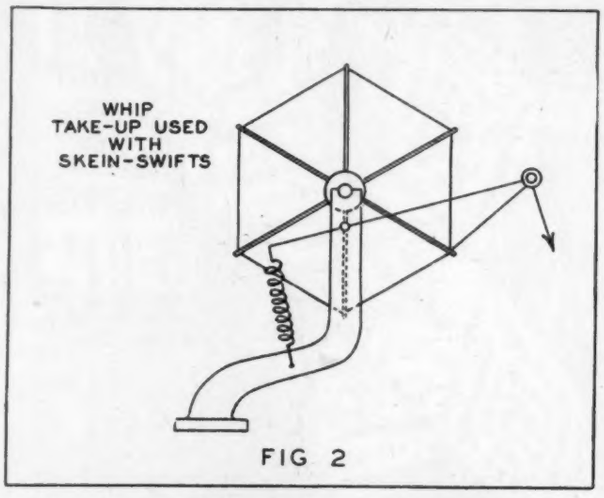

FIG 2

quality of the textile product. Without delving into the reasons of the foregoing variations here, it is sufficient only to bring them to the reader's attention and to remark that quantities of good rayon have been impaired in quality by unnecessary careless handling.

It is apparent that from the time the rayon leaves the spinning machine, utmost care must be used in handling and preparing it on a package which can be applied to a knitting machine. The rayon manufacturers have various methods of supplying the yarn to users. Some spinners wind it in a skein and sell it natural or bleached; dry or oiled; while some manufacturers wind it onto paper cones either oiled or dry, natural or bleached. And in some instances it is wound onto paper tubes or cops usually bleached or dry. Dry in these instances means un-oiled, but with the 11 per cent moisture regain allowed by law. In the circumstances which users purchase the yarn in skeins they must convert it onto spools, bobbins or cones. In any of the winding or converting conditions as described hereafter are applicable either to the rayon manufacturers, converters or users and are noted here to advise the reader of the various methods practically employed for the handling of rayon.

Voluminous articles and treatises have been written on the subject of humidification and the good features resulting are heartily endorsed by those of authority. Practice has deemed the relative humidity in a winding and knitting room to be maintained at between 65 and 70 per cent. However, it is not only necessary to equip a room with apparatus to raise the moisture content, but it is essential to be equipped to lower the content in extreme moist conditions, as it is equally important to reduce a too-wet atmosphere as it is to moisten a too-dry one. All the rayon manufacturers wind the yarn under constant conditions of humidifications not only that the employees can efficiently handle the yarn but to permit an equal amount of stretch to be put in all the yarns since a certain amount of tension is placed on all the yarns by its passing through the cleaners and in making turns of direction on its way to the resultant package. These packages are wrapped in a waxed or similar paper to retain the moisture, as rayon which is received by the final user in a dry state is extremely hard to handle because of the resultant wiry and brittle condition. The smaller mills who convert the yarn to suitable packages are loathe to accept the advantages of humidification, as they do not deem the results to warrant the expense of the investment.

The practice of oiling rayon, which has been almost universally adopted, has been the subject matter of widespread controversies. The benefits derived from the practice are to make the yarn less wiry or likely to cohere the filaments together and to cause the yarn to act as an oil supply for the knitting implements. The latter effect also diminishes the friction between the yarn and the implements thereby aiding the formation of the loops. It has not been authoritatively fixed as to whether the oiling penetrates the whole yarn or whether it merely affects the surface, or which condition gives the best results. Some authorities also contend that oiling the rayon permits a more uniform penetration of the dye. However, with the more recent rayon improvements, it has been possible to knit the rayon without oiling, a situation which is extremely popular because of the saving of the oil, an item of expense which varies the cost of the final product depending on the proportionate amount of oil

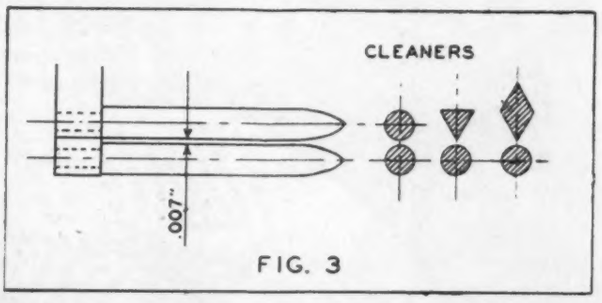

FIG. 3

used. Nevertheless, this saving is subject to discussion because of the efficiency of handling the un-oiled yarn, both in the winding of the package and in the operating of the knitting machine.

Many grades and combinations of oils are used today for oiling rayon. The important features in selecting oils are obtaining oils which are economical; oils which go into solution in the scouring bath and oils which do not turn rancid on standing in the finished product. A practical and handy method of determining the usability of an oil is to insert some of the oil in question into a borax solution. If the oil emulsifies it is relatively safe to be used.

There are in use today many methods of oiling

Hundreds of Distinctive Hosiery Patterns!

All "Banner" machine products of fancy designs and patterns are completely free from objectionable float threads. We call attention to this because it is important to manufacturers of all fancy hosiery. Especially in children's fancy hose.

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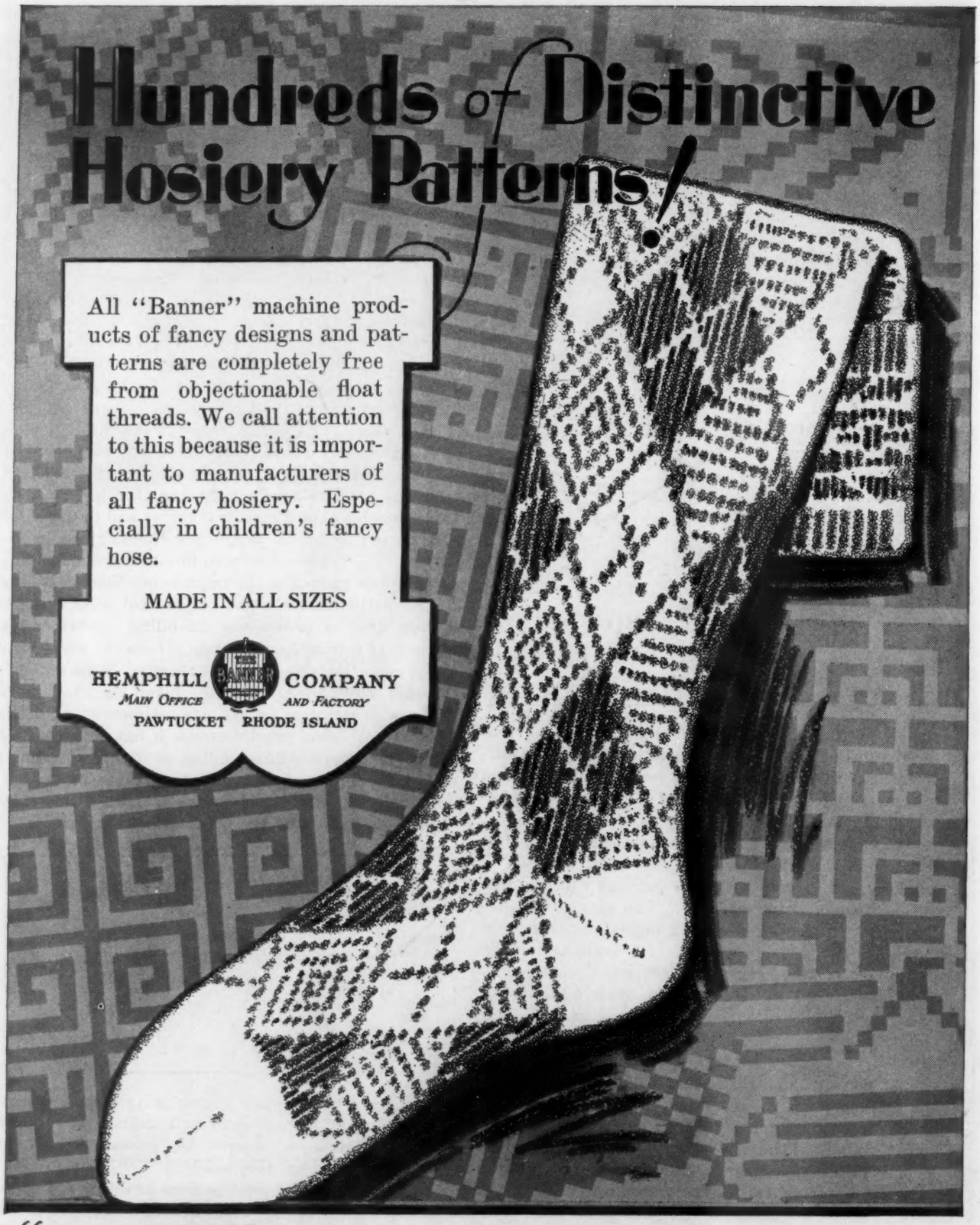
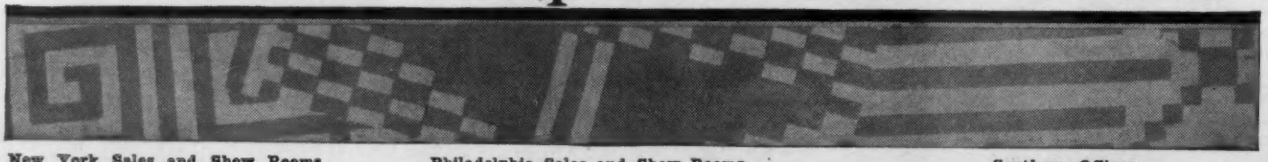


"BANNER" Jacquard Machine Patterns



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rayon, all of which have some very excellent features. One that is applied to the winding machine is to employ a smooth metal roll revolving in the same or opposite direction to the travel of the yarn. This roll is allowed to rotate in a trough containing the oil; the oil adhering to the roll so that the yarn when brought in contact with the top portion of the roll receives its predetermined amount of oil. The speed of the roll and the space of yarn contact can be controlled to suit the needs. The disadvantage of this type is that the roll accumulates a certain amount of lint composed of end clippings from knots, broken pieces of filaments and pieces of string with which the skeins are tied (if winding be done from skeins). It is possible to

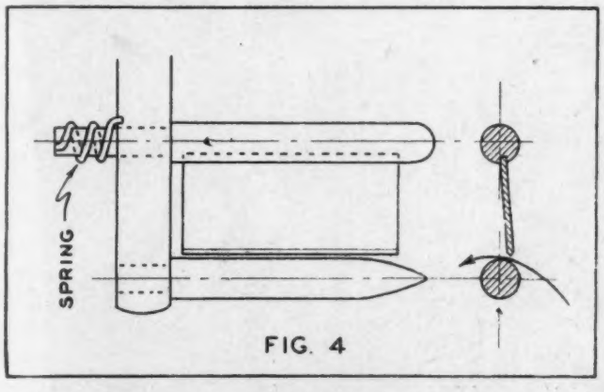

FIG. 4

clean these from the roll when appearing, but necessary to remove the roll to clean the trough, and to drain the oil to strain it.

The most exact method to oil rayon is to employ a centrifuge. Several skeins of rayon should be carefully wrapped in a light material such as cheese cloth to avoid injury to the yarn or disarrangement of the winding of the skein. These prepared bundles should either be immersed in the oil before placing in the extractor or have the oil poured over them after they have been arranged in the basket of the centrifuge. In either case the rayon bundles should be thoroughly saturated before extracting. A centrifuge capable of 1,750 to 2,000 r.p.m. should be used, and by carefully timed periods of operating, the resultant oil contents of the rayon can be determined. It must be taken into consideration that various percentages of relative humidity affect the final oil content. Therefore, mills which do not control the humidity and temperature automatically must compile a carefully prepared operating chart correcting for various atmospheric changes in order to assure a constant percentage of oil content for the rayon. It also must be considered that various types (chemical analysis) of rayon absorb and expel oil differently.

Another method is to fill a leakless box (top open) with layers of rayon skeins. Over each layer of rayon a specific amount of oil by weight should be poured. After about a dozen layers have been so placed and oiled, a weighted cover which fits inside the box should be placed on the top layer. The compressive effect, if permitted to act for ten or twelve hours, will permit the oil to thoroughly moisten the rayon. Of course there is no definite assurance that the yarn is oiled uniformly.

Another similar method is to open each end of a bundle and pour in a certain amount of oil, allowing it to stand for a certain period before using. This method likewise does not assure uniformity.

There are various methods of this type such as spraying a predetermined amount of oil over each skein and allowing it to stand before using.

The oil content has been variously placed between 5 and 12 per cent by weight. But practice has adopted about 7 per cent as that which produces the most satisfactory results. The minimum of 5 per cent is so little that it is hardly worth the oil and labor to oil the yarn, as this small amount does not suffice. The maximum figures give plenty of oil, but it is so excessive that it is troublesome for the winding operators to handle the yarn.

All rayon which is oiled in the skein preparatory to winding should be handled most carefully, as the slightest disarrangement of the winding results in trouble when converting to the final package. There was originally a popular custom to hang the oiled skeins on a cross-pole, which also acted as a bar on which the winding operator could straighten out the original diamond-shaped traverse of the skein. Careful operators soon learned that this snapping action given to the skein on the pole injured the yarn, very often breaking and scuffing the filaments. The practice now is for an operator to hold a skein on outstretched hands and by slight lateral pressure on the backs of the hands straighten the yarn arrangement of the skein sufficiently to place it on a swift.

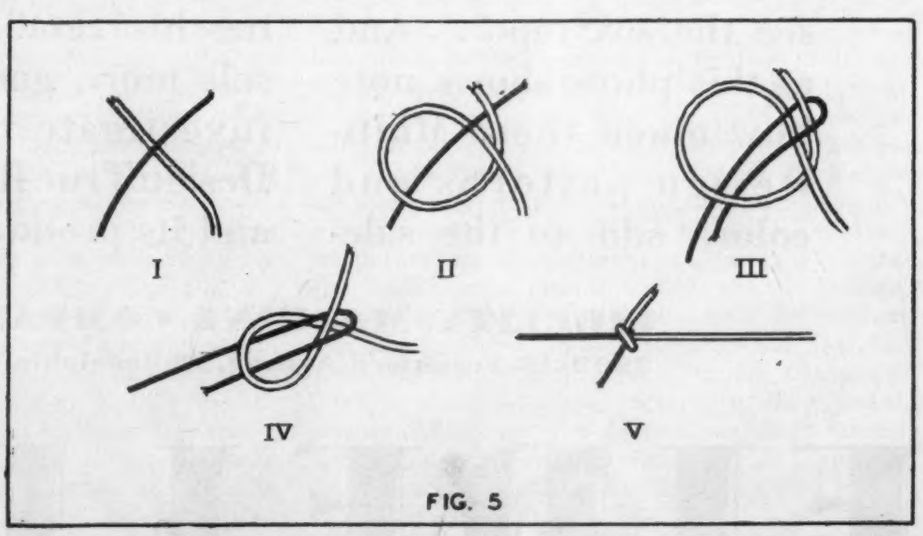

FIG. 5

These sketches show one way of tying a weaver's knot, the method being explained in detail in the accompanying article on page 1198. The solid black line represents the end of thread held by the left hand, the other being the thread for the right hand.

Sox tops that help sales

THE customer in a retail store may never see the foot—but he does see the sox top . . . And as this photo shows, note how much these Multi-Design patterns and colors add to the saleability of the goods . . . Every hose manufacturer, interested in helping his retail outlets to sell more goods should investigate the Multi-Design True Rib Machine and its product.

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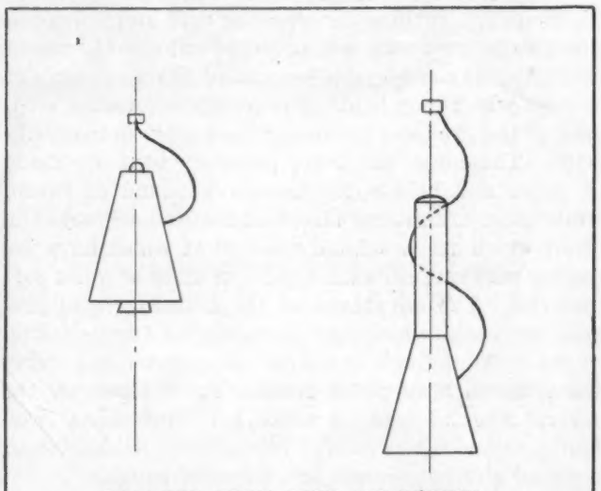
FIDELITY

When winding rayon from a swift to any form of a package, the winding must take place at a uniform rate of yarn delivery. Should the yarn be taken from a swift at a varying rate, the swift will run slow and then fast. It is therefore obvious that when a swift has a tendency to slow down the tension on the rayon going to the package is being reduced, and furthermore, the swift will have a tendency to run ahead. While on the other hand, should the swift commence to speed up, an additional tension will be placed on the yarn, as the yarn is placed under a strain in endeavoring to put the swift into a faster speed. Therefore, a winding machine whose package does not take on the yarn at a uniform rate causes the swift to rotate un-uniformly and places the rayon under a severe variation in tension.

The swift itself is the source of considerable uneven elongation of the rayon filaments, it being the first operation under the jurisdiction of the mill which has a direct action concerning the tension that the yarn unwinds from the skein. Considerable attention should be given the selection of the type of swift to be used. The salient points in considering such a selection should be based on the concentricity which the skein assumes when placed on the swift; the speed and uniformity of yarn delivery; the uniformity of bearing friction and the means for controlling it and the practicability and efficiency of any compensating device for uneven tension adjustment.

The most common type of swift in use is one which is collapsible to enable the skein to be placed on the swift. The construction of this swift is such that when expanded the cross members can be made to hold the skein in a concentric position with relation to its spindle. But the haste and neglectfulness of the operator usually results in the swifts being eccentric rather than concentric. The resulting wobbling effect exerts considerable uneven tension on the unwinding yarn. The journals of this same type of swift are usually made of wood running in a cast-iron (unmachined) bearing, no two of which can be made to run with the identical amount of friction. The variation of friction is supplemented by weights suspended on the middle of the spindle, so placed to eliminate any over-running of the swift. It can readily be realized that no two skeins of rayon placed on such a device can be made to unwind with a uniform tension. There are variations of this type swift in use which have small metal journals and bearings so designed as to minimize and control the friction at this point. And there is still another type swift operating with metal journals and bearings, which is collapsible in such a manner that the yarn holding cross-members are always equidistant from the spindle. (See Fig. 1). This type assures concentricity for the skein and has the bearing construction to produce a more uniform friction. Some manufacturers have gone so far as to construct a spring whip take-up mechanism through which the yarn runs and which applies added tension when the normal yarn tension is momentarily lightened. (See Fig. 2). This type take-up is usually used when the yarn is wound into a package at considerable speed, as the sudden starting of the winding machine places a severe tension on the yarn as the moment of inertia of the swift endeavors to catch up to the yarn delivering rate, since a large amount of energy is proportionately required to start a swift moving.

Rayon as it unwinds from a skein is usually passed through strippers or cleaners on its travel to the package. These devices inherit their name because of the nature of their uses in other processes of yarn manufacture, but should be used here, not as cleaners, but as knot-detectors, as the yarn, when in the form of skeins is supposed to have slubs, spinners, fluff, and other large particles removed. The mistake that is so often made by mill operators is to make them act, not as knot-catchers, but as filament bunchers. By this is meant that the device is so adjusted as to catch live ends of broken filaments and push the filament back upon itself until the severe tension causes the yarn to break on the bunched filaments, slip through the device and become a part of the package. Should it not be desirable to place all the knots in certain positions on the package, it would not be essential at this point



BALLOON FROM CONE AND BOBBIN

of yarn conversion to pass the yarn through such a device. But a stripper or cleaner is the generally used method of detecting knots in skeined rayon. The strippers or cleaners are made of various types of round, flat, triangular or square metal, glass or porcelain pieces, held permanently in relation to another similar or dissimilar piece to form a slot through which the yarn passes. (See Fig. 3). The various compositions and shapes have different advantages and disadvantages. Those types having sharp edges are more apt to strip the filaments back than those of a round shape. Again various types have distances which they should be spaced apart, but it is the general practice to set them so that the slot will be about seven-thousandths of an inch, because a slot of about four-thousandths of an inch stops the yarn too frequently by scuffing back broken filaments. Cleaners of this type should be cleaned regularly by the operator, because lint, oil and dirt soon accumulate in the unused portion of the slot and often cause the yarn passing through to be smudged with a strain that cannot be removed in the dyeing.

As is true of other devices serving a similar nature, there are many ingenious variations in use. One of

which is a round porcelain or glass member permanently set below a keen cutting edge, whose supporting member holds the edge slightly away and off center from the porcelain or glass piece. (See Fig. 4.) Should an abnormal place in the yarn, such as a knot, pass over the porcelain or glass piece, it would touch the cutting edge of the upper member and swing it towards the porcelain or glass piece, thereby closing the slot through which the yarn passes and cutting the yarn. A spring attached to the cutting member returns it to its inoperative position.

So, irrespective of the supreme care that rayon manufacturers give to the product to attain uniformity and perfection, it is very often wasted by the carelessness and inefficiency of the user. It is quite apparent that considerable damage can be done to the rayon by subjecting it to elements that are lurking in the swift and the cleaners to extenuate the filaments by variations in tension.

Types of Packages.

The types of packages which are used to wind rayon on are the bobbin, the cone, the quill and the spool. The two latter forms are not used extensively where production is considerable because of the small amount of yarn which they hold. The resultant constant stopping of the producer to change the supply is too inefficient. The cones which are generally used are made of paper and hold approximately a pound of rayon, while there are several size bobbins used. Practically all of which are wood and most all of which have the conical part covered with a piece of cloth or other soft material. The advantage of the covering is to prevent the yarn (when oiled particularly) from sticking to the wood and also to enable the operator to observe when the yarn supply is nearing exhaustion. Of the several sizes of bobbins which hold from about one-half pound to five pounds of rayon, those holding about a pound and two pounds are the most popular.

There are meritorious features to both the cone and the bottle bobbin, and the final decision as to choice remains with the user. It is unquestionably admitted that the cone permits the yarn to leave the package more freely than does the bobbin, particularly when the yarn supply on the bobbin is very little and the neck of the bobbin is very large and long. The guides which are usually placed above the package to balloon the yarn cannot be arranged on some large bobbins to balloon the yarn so that it will not touch the neck. Rayon which contains a large percentage of oil or that contains many split filaments drags around the neck of a large bobbin to such a degree as to be injurious to the yarn by placing an uneven amount of tension on the unwinding yarn.

While on the other hand, yarn can be placed on a bobbin under a much less tension than it can be applied to a cone. Because the shape of the cone, to be maintained, must have a relatively heavy tension on the rayon in the formation of the package, otherwise the cone would build up unevenly at the top and bottom and the rayon would be so loosely placed on the package that it would be impossible to unwind it.

It is therefore apparent that both methods have their faults, but there is a general opinion that the severe tension placed on the rayon in forming the cone is more injurious to the yarn than the tension placed upon it as it drags around the neck of the bobbin when the yarn supply thereon is low.

There are advocates of both the cup builder and the automatic builder for shaping the bobbin on a winding machine, the cup being the more popular. It is generally conceded that the cup builder does not scuff the yarn as it touches the package as is a widespread belief. However, there is a general fault with both types of builders when applied to winding a very soft rayon and that is the traverse is not steep enough to prevent the various layers of rayon from rolling over and becoming underwound.

It is almost needless to say that bobbins or cones running on a worn winding machine spindle affects the winding as do rough and dirty guides. Extreme care should be used to keep the cups of cup-building winders and the bobbins themselves of any type free from all nicks and abrasions. Anything which may tend to retard or alter the progress of the running of the rayon, even if momentarily, will affect the tension which in turn affects the yarn itself.

There is one system of winding from skeins to bottle bobbins which has attracted attention, but because of the additional handling cost is practically prohibitive. The rayon is taken from the skein on a swift directly to a spool, the yarn in its travel being perfectly free except where it is passed through a large guide which lays it onto the spool. The spool is frictionally driven and on a tangle in the skein slips rather than breaking the yarn. The yarn on the spool is then unwound onto a bobbin, being carried through a guide whose opening detects knots only so they may be broken and retied to place in the proper position on the bobbin. This method relieves practically all unnecessary and uneven tension which is applied in other forms of conversion.

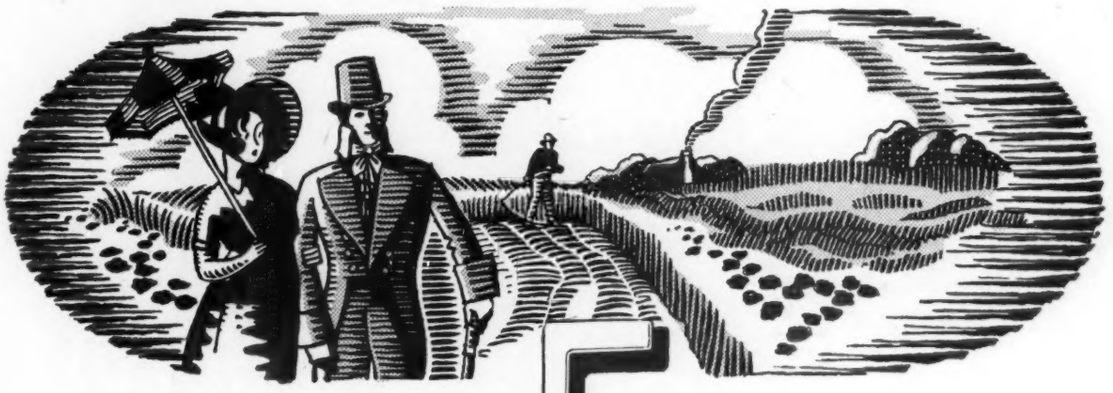
In the formation of a package, all knots have a specific location. The bottle bobbin type of package should have all the knots placed on the outside and below the lowest point of the traverse at the time the knot is placed. Should they be placed in the path of the traverse, the unwinding yarn would catch on the knot with obvious damaging results. The cone type package should have the knots placed across the top of the cone for the same reason.

How to Tie a Weaver's Knot.

Of the various types of knots used, the weaver's knot is the most popular and satisfactory. The knot is tied by grasping a free end in each hand and holding between the tip of the thumb and the tip of the forefinger, allowing about one and a half inches to extend. (See Fig. 5.) Place the end of the yarn held by the right hand on the tip of the left forefinger (allowing about one inch to extend) under the yarn held by the left hand. Hold this cross formation (ends extending about one inch) securely by the left hand thumb. Grasp the long end of yarn previously held by the right hand and wrap it around the back of the left hand thumb; then pass it under its own end (left end of extended cross) and in front of the other end (right end of extended cross), holding it between the

AROUND THE SEASONS WITH TORRINGTON LATCH NEEDLES

AUGUST ALMANAK



1929 August hath 31 days, 8th mo.

The gathering clouds bespread the sky,
And gentle showers descend:-
The ripening fruits we just descry,
As summer is at end.

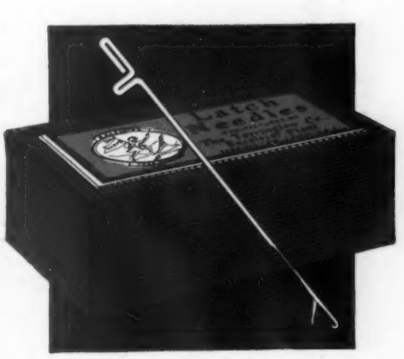
FARMER'S ALMANAK 1819

FO IN motorboat and canoe, over mountain path and golf course . . . vacationists pursue pleasure through soon-to-end summer days. Knitted wear of course is part of the picture. But fashion smiles only on well-knit fabrics.

Torrington Latch Needles help your production keep step with this finer, more profitable demand. They are everything *good* needles should be . . . in smoothness, temper and uniformity.

Knitters the world over find that Torringtons give accurate, continuous performance and are altogether productive of good work.

Torrington Full Fashioned Needles meet the demand for needles of remarkable uniformity . . . and are easier to prepare for actual knitting.



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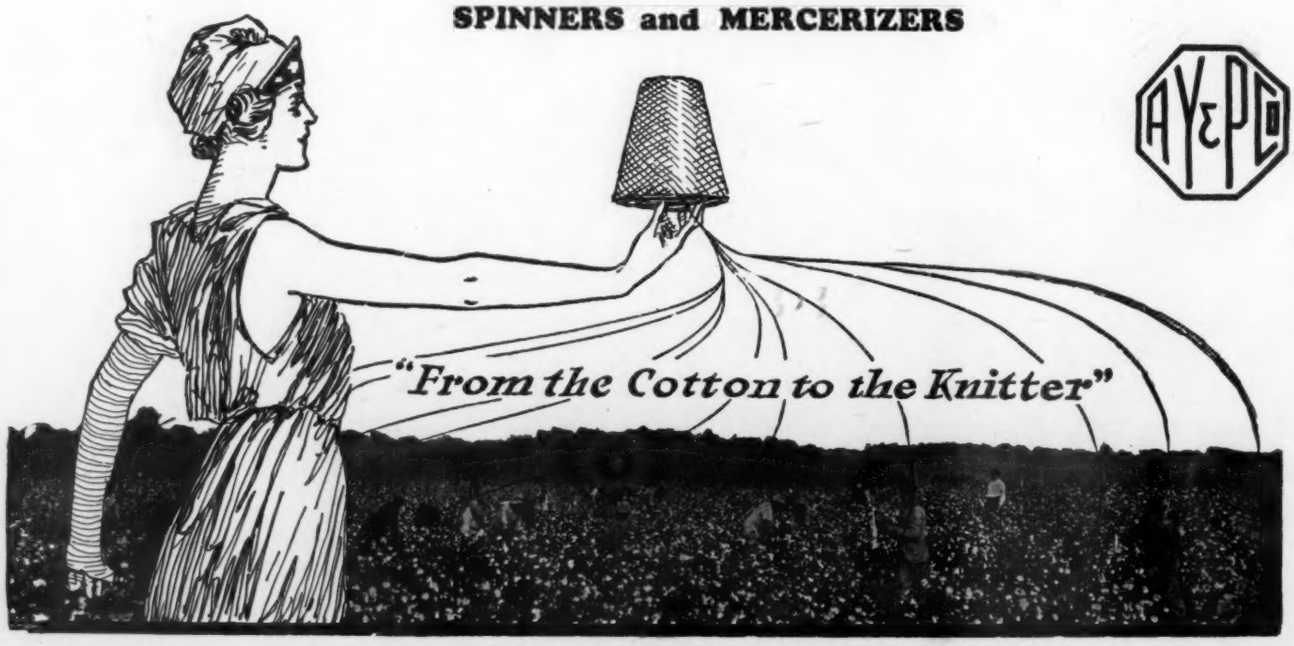
SPINNERS and MERCERIZERS



left hand thumb and forefinger. This makes three parts of yarn held by the left hand thumb and forefinger. Now take the tail of the original yarn held by the left hand (that is the upper right extension of the cross) and push it toward the left through the loop formed around the back of the left thumb, this loop being allowed to slip towards the top of the thumb. Grasp this end passed through the loop with the thumb and middle finger of the left hand. Pull the long end of the original yarn held in the right hand until the loop becomes tight. Clip the tails with scissors.

This knot should not be pulled so tightly that the parts of the yarn immediately adjacent to the knot have their filaments broken, nor so loosely that the ends pull through the knot. The tails of the ends should be clipped about 3/16ths of an inch from the knot. Tails cut too closely often pull through and tails left too long make thick places in the fabric.

In selecting operators for winding rayon, care must be experienced in obtaining only those who do not have any considerable amount of acidity in their physical system, as very often where such an operator holds the yarn the moisture from the hands affects the yarn, which either results in knitting damages or dyespots.

Therefore, in conclusion, too much emphasis cannot be placed on the care with which rayon is handled, and it is utter waste to have rayon yarn which is manufactured so carefully, ruined by careless operators. Check the handling of the rayon in your plant and eliminate all conditions which tend to stretch and injure the yarn. The resultant improvement in the final fabric will be worth the time and care expended.

A History *of* Hosiery Inspection

By Edward R. Ammon

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Prologue.

"HOW dare you present to me, your queen, such coarse stockings?"

This sounds like an argument, but Reverend Lee did not argue back and instead apologized to Queen Elizabeth of England. Thus is recorded the result of the first hosiery inspection.

Friend Reader, it is hard to realize that an art so hoary with age and originated by such a haughty pioneer should have lanquished for more than 340 years. Only recently has hosiery inspection been improved and perfected so that it takes its place, along side of the modern hosiery knitting machines, both seamless and full fashioned, as well as the marvelous auxiliary machinery with which the present day hosiery mill is equipped.

THE first record of hosiery inspection dates considerably further back than most of us realize.

Hosiery as we know it today was first produced in the year 1585 by Rev. Wm. Lee of Nottinghamshire, England.

Rev. Lee and the Queen.

It appears that in those remote days some ministers of the gospel had just as hard a time to make ends meet as they have today.

For this reason his wife felt it her duty to do what she could to increase the family's income, and took to knitting stockings by hand.

The Reverend Lee, while studying the next Sunday's sermon, unconsciously watched her fingers deftly move the needles so as to form the stitches, and finally became obsessed with the idea that it would be possible to do this by mechanical means.

In his spare time he started working on a machine to accomplish this. Eventually he succeeded in making a device that knit a flat fabric on a principle very similar to our full-fashioned knitting machines of today.

His achievement was very remarkable considering that he was not a trained mechanic, also in view of the crude tools and materials procurable 344 years ago.

His machine was constructed to knit woolen yarn, and in consequence had eight needles to the inch.

He was justly proud of this marvelous invention and really started to put stockings on the feet of the civilized world. It happened that his pride suggested that he present a pair of the hose from the new machine to the then reigning Queen of England, Elizabeth.

It happened that she had been used to fine hand knitted silk stockings and not appreciating the value of his invention, she felt hurt when he presented her with wool stockings made on a machine with eight needles to the inch.

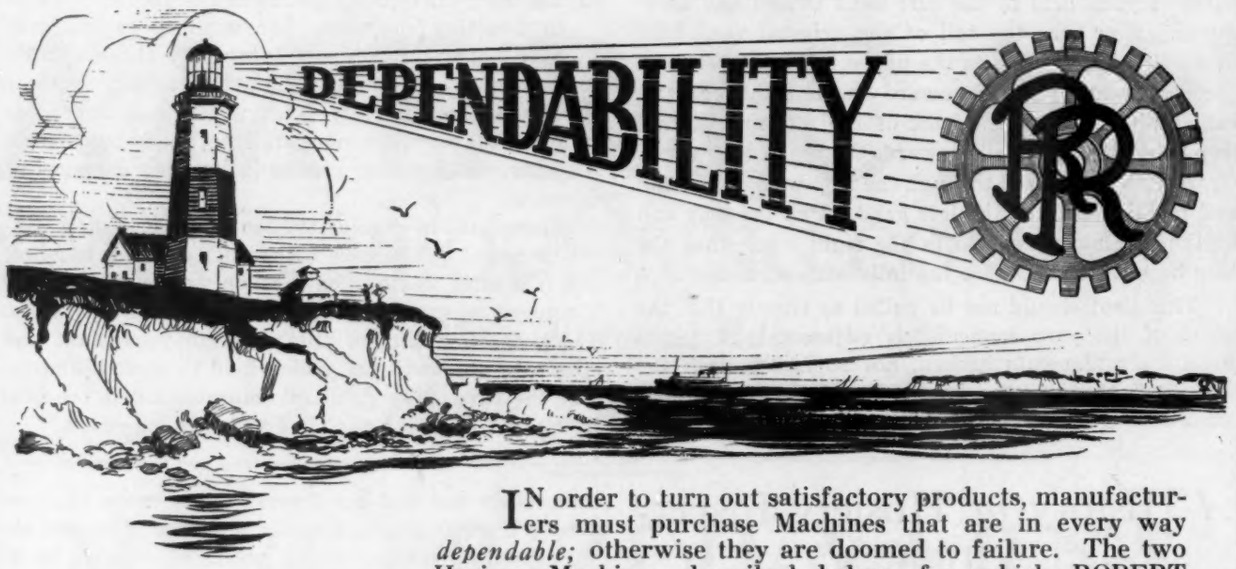
Reverend Lee immediately started to make a finer machine and eventually produced one with 20 needles to the inch. On this he produced silk stockings which were of a fineness equal to many full-fashioned hosiery made and sold in the United States only 25 years ago.

Next month we will tell you of some of the early inspectors in the mills of the United States.

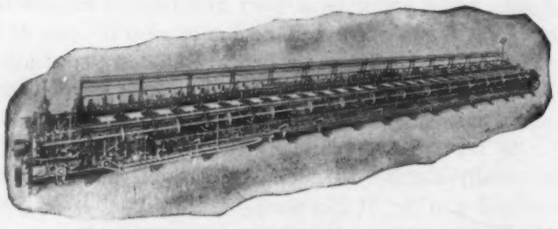
McInnes Receives Promotion.

H. S. McInnes, formerly in the Chattanooga office of Standard-Trump Brothers Machine Company, has been promoted to the position of assistant sales manager of the company and has removed to New York in charge of the company's office at Room 614, 366 Broadway, where samples and machines are on display. Mr. McInnes has been with the firm for approximately ten years, and was in the Wilmington office prior to going to Chattanooga to open up the office there.

William L. Jackson of Chattanooga, has succeeded Mr. McInnes as southern representative of the Standard-Trump Brothers Machine Company, with headquarters at the company's office at Room 513 James Building, Chattanooga. Mr. Jackson was formerly connected with the United Hosiery Mills Corporation and the Johnston Mills.

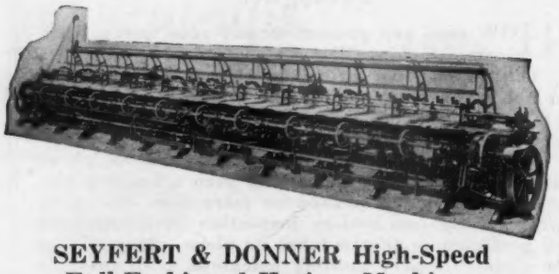


IN order to turn out satisfactory products, manufacturers must purchase Machines that are in every way *dependable;* otherwise they are doomed to failure. The two Hosiery Machines described below, for which ROBERT REINER, INCORPORATED, is the sole American and Canadian representative, are known throughout the world for their absolute dependability and reliability and for the superior quality of their products.



EINSIEDEL "REINER" High-Speed Full-Fashioned Hosiery Machine

This machine is not a new, untried product. It is in daily use in a great number of the largest and foremost Knitting Mills in the country. It is made in any desired number of sections and in 39, 42, 45, 48, 51, 54 and 57 gauge, with seven carriers and needle heads varying from 14 in. to 16 in., driven by a two-horse power motor. This Machine will produce sixty-five full courses per minute, and with it the most novel effects in clock and lace designs and in fancy stripes can be obtained. Manufacturers can depend upon this Machine to turn out the highest-quality Hosiery.



SEYFERT & DONNER High-Speed Full-Fashioned Hosiery Machine

This Machine is made by the largest and most prominent Flat-Knitting Machine Builders in Germany, and is constructed on lines very similar to the Einsiedel "Reiner" Machine. Identically the same needle is used. Seyfert & Donner have succeeded in developing an entirely new Slur Cock and Jack Head, which assures a perfectly uniform stitch and which allows the Machine to attain a speed up to seventy-two courses per minute. Oil rings are used in all main bearings and the Machine is delivered in any number of sections and in any gauge. High quality of production at a low up-keep cost is one of the primary characteristics of this increasingly popular Machine.

You are cordially invited to visit our Factory Show Rooms in Weehawken, where you can see the EINSIEDEL "REINER" and the SEYFERT & DONNER High-Speed Full-Fashioned Hosiery Machines in operation every day.

ROBERT REINER, INCORPORATED

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(In sight of the Woolworth Tower)

Founded 1903 **Phone: UNION 502-503-504**

Telegraph Address: "REINER," HOBOKEN, NEW JERSEY

PLEASE be sure to let us know any questions you would like to have Old Knitter discuss. This is the third exchange of letters between him and his son, who formerly worked for his father, and who has taken charge of another mill and is writing back for advice.

This month Dad tells Son about preventing stiff latches and maikng up bleaching formulae. Next month he gives him some advice about a strike situation he ran into.

DEAR DAD:

I have been having a lot of trouble with gummed latches recently, and I want to know what to do to overcome this trouble. I am enclosing a couple of needles, showing the stiff latches, also a stocking showing the kind of streaks they make in the stocking.

I would also like to have your bleaching formula, as I have been getting a very poor white recently.

Tell Jack that I will answer his letter in a few days.

With love to all the family, I remain

YOUR DEVOTED SON.

DEAR SON:

Your letter containing the gummed latches and the sample stocking came to my desk this morning. Your trouble is in the way the silk is conditioned. The gum has been softened too much in the soaking and the gum is coming off the silk and working into the latches. You should take the matter up with your throwster and have him correct this defect. While you are still running this silk you can clean your latches by pouring a stream of gasoline from an oil can on the heads of the needles, while the machine is running, followed immediately with a light stainless needle oil. If you will oil the latches freely about twice a day with this light oil, while you are having this trouble, it will help to keep the gum worked out.

On the needles where the gum is pretty solidly embedded in the cheek, you can pass the point of a thinly ground needle through the cheek and punch it out. Where you are having this trouble occasionally with individual needles, this is the better way to fix them.

In looking over your stocking, I notice you are making an eight-thread all-silk stocking with a four-inch welt, with a 60s/2 mercerized yarn inside the hem. I believe this stocking would look equally as well with a 3½-inch welt as a 4-inch, and you would save a half-inch of mercerized yarn inside of the hem. I also noticed that the stocking appears to be knit a little sleazy, and measures 30 inches in length. With a little tighter tension to make this stocking 29 inches in length, you would improve the fabric and make it appear heavier, but in fact, require a little less silk.

I also notice that your fashion marks do not conform to the contour of the board. The stocking begins to tighten up for the ankle two inches above where the cast begins to taper. To lower the ankle would cause the stocking to fit the boards better and would make the stocking probably an inch longer and enable you to take at least one link, and possibly two, out of your pattern chain, thereby saving some additional silk.

With reference to peroxide bleach formula, you can use either the one-bath or the two-bath method, or better still, a combination of the two. You make up your bleach liquor based on the amount of water used in the machine, and not on the weight of the goods. A certain water level in your machine is necessary for the proper action of the goods in the machine, and this amount of a given bleaching strength will bleach the capacity loading of the machine just as well as it would a ten per cent loading. Therefore, it is economy to use a dyeing machine of a water capacity to correspond with the size lot to be bleached.

In other words, it will cost you approximately as much to bleach 50 pounds of goods in 300 gallons of water, the correct bleaching strength, as it would 200 pounds of goods in the same 300-gallon bath.

For a 300-gallon bath, I would suggest that you make up your bleaching liquor as follows: Make up the bleach in 50-gallon barrel, containing 40 gallons of water. Add 18 pounds of sulphuric acid. Add sodium peroxide slowly and stir well until the bath becomes neutral, which will require about 12 pounds of peroxide. Use both red and blue litmus paper to test the neutrality of the liquor. If your bath turns milky white, you will know thaty ou have added too much peroxide, which may be neutralized again by the addition of an ounce or two of acid. When the bath shows neutral, throw it on the alkaline side by the addition

PARTS ORDER DELIVERY

At 9:15 A.M. a well-known hosiery mill in South Carolina wires us for parts wanted "in a hurry." But stock parts are always wanted in a hurry — so the order was put through in the usual manner.

By 10:20 A.M. it had left our plant in Reading and was speeding south over the shortest and fastest route — "in a hurry." Its receipt at 2 P.M. *the following day* was acknowledged by the foreman of this mill in a highly complimentary letter which stated that the speedy service of our Parts Department had always been a subject of much comment in his plant.

If you operate Reading Full Fashioned Knitting Machines you know yourself just how much prompt service on stock parts means to profitable, uninterrupted production.

TEXTILE MACHINE WORKS, Reading, Pa.

The "READING"
Full-Fashioned Knitting Machine

of four pounds of silicate of soda. This liquor is now ready for the machine.

Boil off the 200 pounds of goods in the machine for 15 minutes, with three per cent olive chip soap or five per cent degumming oil, based on the weight of the goods. Then drain off.

Then fill the machine with hot water by mixing the water with the steam as it enters the machine, allowing space in the machine for the 42 gallons of bleach liquor. Add to the bath, five per cent olive chip soap or seven per cent degumming oil, and the 42 gallons of bleach liquor, and run at a temperature of from 190 to 200 degrees F. for 30 minutes, and sample.

If the cotton is bleaching faster than the silk, lower the temperature. If the silk is bleaching the faster, raise the temperature.

Then sample every five minutes. When the sample shows no improvement over the previous sample, it is time to run it off. Overbleaching will cause the silk to turn yellow. No bleach should ever run more than an hour at this temperature.

Rinse in hot water ten minutes at 140 degrees F. Run in the second rinse at 110 degrees F. for ten minutes, with one per cent Ivory chip soap. Then rinse in cold water for five minutes.

Add the bluing to the fourth rinse heated to about 100 degrees F. The goods are ready for the hydro-extractor.

This formula is based on using Permutized water, such as you have at that plant.

I trust this method will give you the desired results, and I shall await with interest your report.

With much interest in your success, and ever anxious to assist you, I remain

Devotedly,

DAD.

Among the Knitting Mills

AN additional tract of land has been purchased by the Acme Hosiery Mills, Asheboro, N. C., on which an addition to the present plant of that company will be erected. The mill now operates 600 knitting machines.

According to announcements of the Ansty Knitting Mills of Germantown, Pa., they have let contract for the erection of a new plant at Mount Airy, N. C. They state that the plant will be equipped to manufacture sweaters.

The Richmond Hosiery Mills, of Rossville, Ga., according to an announcement made by J. Harvey Wilson, is doubling the capacity of its plant at Daisy, Tenn. A new building having a floor space of 20,000 sq. ft. constitutes the addition that is being made to the Daisy plant. It is a one-story brick affair of mill construction, and the building alone is expected to represent an investment of around $50,000. It is being erected by Mark K. Wilson, Chattanooga, Tenn., contractor.

Contract has been let for the building of the new full-fashioned hosiery mill of the Cadet Hosiery Company, at Columbia, Tenn., to T. C. Thompson and Brothers, of Charlotte, N. C. The main mill building is to be 344 x 107 feet, one story; basement is to be 103 x 107 feet; there also is to be an entrance tower, machine shop, and two locker and toilet towers. The total floor space is to be 49,642 sq. feet. Robert and Company, Inc., Bona Allen Building, Atlanta, Ga., are the architects and engineers.

The Bell Hosiery Mills, of Suffolk, Va., have increased capital stock from $140,000 to $300,000.

The Virginia Maid Hosiery Mills, Pulaski, Va., has started operations. There are only 25 operatives employed at present—it bing the policy of the company to increase the number of operatives as additional machinery is added. When the first unit of the mill is completed, it will have a capacity of 300 dozen pairs of hose per day. The company has been incorparted at $300,000.

Arcadia Knitting Mills, Inc., Allentown, Pa., is considering a one-story dyehouse addition to its plant, which will cost about $75,000, with equipment. An early call for bids is being planned.

Additional machines and equipment have already been purchased for the three-story addition to the Wilkes Hosiery Mills Co., Wilkesboro, N. C.

Walter Fred Hosiery Mills, Inc., Nashville, Tenn., reports the letting of contracts to Nashville Machine and Supply Co., Nashville, Tenn., for boilers, stokers, etc., for their plant, and to the Parks-Cramer Co., Charlotte, N. C., for air conditioning equipment.

The Majestic Hosiery Co., Philadelphia, Pa., by increasing equipment, has brought the total of full-fashioned machines now in operation to 25.

A very extensive addition is being made to the Westcott Hosiery Mills, Dalton, Ga. The new building, which is now under construction, will be 100 x 225 ft., with a floor space of 55,000 sq. ft. Upon the addition of 700 new knitting machines, the plant will have a total of 1,200 machines which will provide the necessary equipment for the proposed production of 1,000,000 pairs of hose per month.

A new hosiery mill is being started in Columbus, Ga. by W. R. Forrester and L. C. Watkins. They are expecting to have 25 machines in operation by January 1. Scott & Williams spiral machines, 240-needle, are the machines to be used in the manufacture of men's fancy half-hose.

The new two-story addition to the Soddy Hosiery Mills, Soddy, Tenn., being built by Mark K. Wilson, Chattanooga, Tenn., contractor, is fast nearing completion. Upon the completion of the building, 225 more seamless knitting machines will be installed and men's and boys' golf hose will be added to their line. An addition of 1,000 sq. ft. is also being made to the finishing department.

The new three-story addition of the Wilkes Hosiery Mills Co., North Wilkesboro, N. C., is to be very modern in every respect, being equipped with steam heat and sprinkler system. Production is expected to be increased to approximately 1,000 dozen pairs of half hose per day.

A new factory is to be opened in Sherbrooke, Canada, by the Arcadia Knitting Mills, Inc., Allentown, Pa., manufacturers of knitted rayon cloth. About 50 operators will be employed at the start and $75,000 worth of machinery installed, with extensions being made gradually.

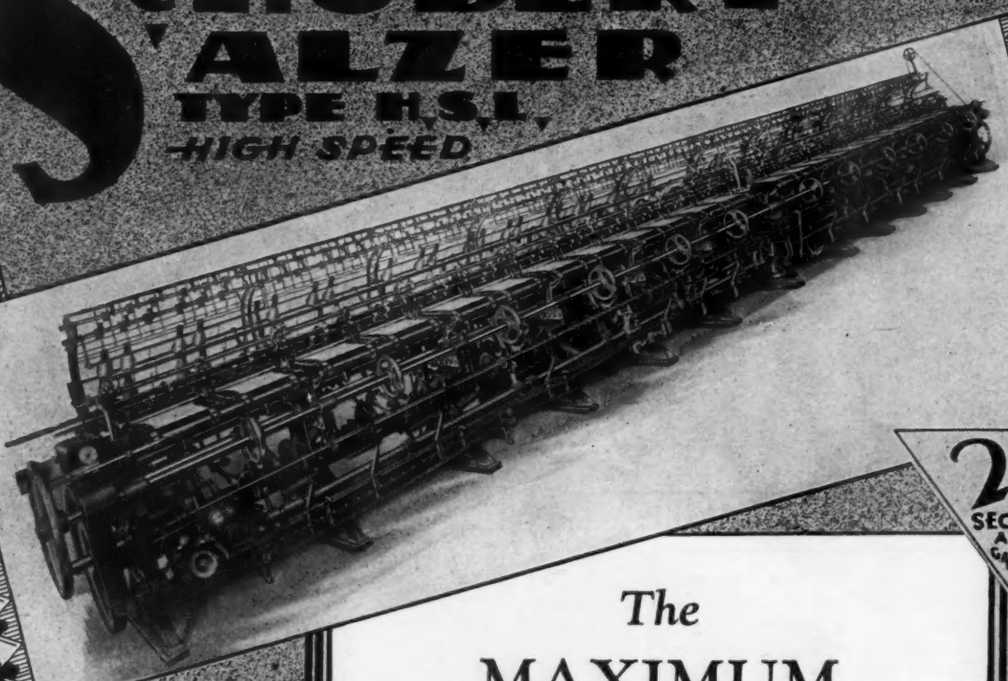
A new hosiery company going nuder the name, Rowe Hosiery Co., has been formed at Philadelphia, Pa., by John M. Rowe and Stuart P. Randall and will make all silk, full-fashioned women's hose. The new company bought the 42-gauge equipment of the Holyoke, (Mass.) Silk Hosiery Co., which amounted to 10 leggers and 3 footers for the present.

"The Full Fashioned Hosiery Industry."

A new book, entitled "The Full Fashioned Hosiery Industry," which is the work of John Nash McCullaugh, managing director of the National Association of Hosiery and Underwear Manufacturers, New York, has just been published, it is announced. This is the only book in this or any other country having for its sole purpose the detailing of a correct and complete cost system for full fashioned hosiery manufacturers, it is announced. The cost methods it outlines are applicable to both large and small mills, and are subject to adaptation to meet the needs of individual manufacturers. The book will be published by the Howes Publishing Co., 90 William Street, New York, and will be offered for sale exclusively by this company for $10 per copy. The National Association of Hosiery & Underwear Manufacturers will send one free copy to each of its members requesting it.

SCHUBERT and SALZER

TYPE H.S.L. HIGH SPEED



24 SECTIONS ALL GAUGES

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FULL FASHIONED HOSIERY MACHINES

PROPOSED PLANS for Full-Fashioned Wage Scale

A MAJORITY of the manufacturers of full-fashioned hosiery who were, in one way or another—directly or indirectly—represented in the meetings of a joint committee which adopted a revised wage scale and new working regulations, have approved it by a vote of those present at a meeting in New York on July 1st. The American Federation of Full-Fashioned Hosiery Workers, whose committee had worked the matter out with the manufacturers' committee, had previously voted approval and sent drafts of the proposed agreement to all of the Federation's local branches, with a recommendation that they adopt it. This was as far as the two parties had gotten with putting into effect a new agreement at the time this was written.

Considered as a Stepping Stone.

Although the intended agreement as framed by the committees in joint conference was ratified by their respective clientele as bodies, there was lacking assurance that it ever would be made effective. Persons speaking with authority for both sides said it had been accepted as a stepping stone to some sort of definite arrangement between union mills and union help; that neither side was enthusiastic over it. A division of opinion was manifest in the meetings of the Federation at which the document was discussed before being submitted to a vote, and it was officially stated that there was only a little more than a two-thirds vote in favor of adoption.

The draft was said to have met with violent opposition from the more radical element in the Federation, an element that is stronger numerically in some of the locals than in others. So, there remained a question whether all of the branches would vote approval and what might be the effect on the Federation membership in the event of a split sentimentally. The Federation, in order to bring about what was hoped would be nation-wide collective bargaining, had surrendered the keystone in its arch of principles for keeping a maximum number of union knitters in employment—yielded the right of manufacturers to employ one knitter, under certain conditions and regulations, to operate two machines. More than one strike in which this principle was the vital issue had been lost to the union, and this doubtless had something to do with the Federation's concession.

Although the manufacturers represented in the joint conferences had by vote approved the proposed agreement which it worked out, it remained for them individually to sign contracts under which they would be bound to abide by its provisions, after the Federation locals have committed their members to its acceptance as a definite working understanding. There is said to be little or no dissatisfaction with the proposed rate of pay for knitters operating two machines, who are to pay their helpers. Exclusive of this outlay by the knitters so employed, they are to receive one cent less per section per dozen than the existing union rate for operating one machine. That is two 18-section machines would pay 18 cents less per dozen than the prevailing rate; two 20-section machines would pay 22 cents less per dozen.

Under a provision applying to the more modern long section high speed equipment and adjusted to the number of sections over 18 and number of courses per inch, a 24-section legger job on the two machine plan running 64 courses per minute will pay six cents less per dozen for sections and nine cents per dozen less for speed, or a total of 15 cents less per dozen.

There is provided also a sliding scale for footers, according to which these machines are to pay one-half cent less per section per dozen over 20 sections, and one-quarter cent less per section per dozen for each four courses over 52. A 24-section footer running 64 courses per minute will therefore pay five cents less per dozen and a 28-section footer running 64 courses per minute will pay 10 cents less per dozen than the existing rate.

Rates for courses based on 1550 as standard and for "extras" are given in a maze of figures which hardly enter into consideration in mills operated on either the open shop or non-union plan, where there is less intricacy in the scales.

May Be Terminated on Two-Months Notice.

The first test of manufacturer approval of the proposed new working arrangement came with the signing of the contract, to run one year, by manufacturers individually. It may be terminated upon 60 days' notice from either side, and it is provided that pending cancellation under such notice there shall be no strikes, lockouts, boycotts or picketing of any description. A similar provision applies to periods during which matters in process of arbitration are pending.

One point gained by the union is that in mills operating under the individually-signed contracts, all knitters, helpers and toppers shall be union members and all departments already organized shall remain organized. Thus the unionized mill becomes more tightly unionized.

It is estimated that approximately 5,000 full-fashioned hosiery knitting machines are operated by union knitters and that the 30 manufacturers who voted as a body to approve the proposed agreement control around 3,000 of these machines. These figures would appear open to dispute, it is held by manufacturers not favorably disposed toward union recognition in matter of collective bargaining. Considering the number of open shop and non-union mills, it seems likely that there is embraced in the reckoning the members of the union employed in open shop mills in the South

and, notably, in Philadelphia and Reading and areas suburban to these cities.

Will manufacturers operating open shops accept the proposed contract? is a question among employers of both union and non-union help. This question is the more conspicuously in the forefront in manufacturer circles in view of a strike at the plant of the Cambria Silk Hosiery Co., in Philadelphia, which grew out of the employment of help under what the union terms the "yellow dog contract." The Cambria company says there is no strike, that it simply laid off its help, during the first week in July, because it "had a surplus of stock in the gray," and proceeded to employ help under an agreement which, it was stated by the attorney, "assured employees more earnings than if operating as union help." Besides, the attorney state, "we prefer to have employees under our form of contract."

This was the first strike to be called in a full-fashioned hosiery mill after the proposed new union agreement was adopted by the joint committee of manufacturers and Federation representatives. The mill had in its employ a number of members of the union, but, it was stated by the attorney, "it has not been operating as a union mill and we therefore do not concede the union's right to interfere with our employment of help."

All of the union help was called out by the Federation's local so soon as it became known what form of contract the Cambria had undertaken to introduce. It is predicted the final outcome of this controversy will have a considerable bearing on the extent to which the proposed new contract will be entered into by manufacturers. It is pointed out that if no more than the original 30 "sign up with the union", conditions as between the unionized and open shop mills will remain about as they have been for several years.

That the union will wage membership campaigns in scattered knitting centers seems a foregone conclusion. The extent to which these efforts at complete unionization will be successful is conjectural. Distribution of mills over a wide area is said to be not favorable to the success of a campaign for organizing the whole industry. Practically all of the recent additions to the number of plants are operating as open shops—some few as non-union. It is assumed among manufacturers that the first aim of the union would be to recapture the mills which it has lost in the last few years.

Although the contracts which manufacturers are to execute under the agreement reached by the joint committee of mill representatives and representatives of the union provide that "all 39- and 42-gauge leggers up to and including 20 sections, operating at not more than 52 courses per minute, shall be doubled up, with the understanding that 39-gauge machines shall be doubled first, and that not more than 15 per cent of the total equipment in any given mill shall be doubled in the first six months, and not more than 10 per cent of the total equipment in the second six months," it is obvious that it would not be long before a number of knitters would be laid off. That this is conceded by knitters, seems indicated in the number who are about to establish mills. At least a half dozen plants in and near Philadelphia have been started by knitters since the first intimation of the union conceding the two-machine system was given. Two are in production, four or five more will be by Fall, and several are in contemplation.

It seems well within the range of probability that the full-fashioned hosiery industry and the American Federation of Full-Fashioned Hosiery Workers are at a turning point so far as pertains, at least, to mutual relationships.

Observations of Hank G. Spindle.

(*Continued from page* 1121.)

formerly dyed it on the skein, afterward winding it on small spools and cones, he now eliminates one or more processes.

"Of course the mills that keep the business will have to put in the proper winding machine to wind this yarn, as it must be wound with rather firm ends but softer in the middle of the tube. This is because the dye can be forced through it easier this way.

"The system is referred to as the 'Thies system' of dyeing, and is becoming more and more popular because of the saving in processes, and thereby the cost of manufacture, or dyeing, perhaps I should have said.

"To my mind, these mills that don't keep abreast of the times and install the new methods of manufacture to meet the needs of the age—which, of course, often means new machines—will be left out in the race for existence. It costs money, of course, but so does it cost money to plow and plant, and just as it would be foolish for a farmer to stop farming after he had plowed and planted, and allow the grass and weeds to choke out the crop, so is that manufacturer who clings to outgrown methods and machines headed toward the financial potter's field.

"Not that you should buy everything that comes along. Of course not; but business has certain trends, and if these trends are watched they are a valuable guide to what may be expected in the future.

"For example, from time to time the yarn mills are asked to take on another process of manufacture that is being done without extra cost by the dyer or finisher; often it means expense for new machines and extra labor at the mill of the spinner, without reward or hope of reward.

"Now I don't blame the dyers and finishers; that's business. The only thing we spinners can do is to quicken production and keep the quality of the product satisfactory, thereby, to some extent at least, offsetting the extra manufacturing costs, as it's not likely that the dyer will pay any more for yarn wound on tubes for dyeing on a $3500 machine than he would for skeins reeled on a $200 machine by an employee who can reel twice as much in a day as she can wind.

"Well, it's getting a little late now," Hank yawned as we walked to the door, "and I had better get home, but before long I want to tell you what I think are some essentials of good foremanship."

[Some more of Hank's observations will appear in an early issue. If you missed the first installment in the July number, let us know and we'll send you a clipped copy.—The Editor.]

What is Your Needle Breakage, and How Do You Keep it Down?

EDITOR COTTON:

As our needle bill is one of our most important cost items in hosiery manufacture, we do not feel that our system of keeping check of our needles as they are being used by the manufacturing departments, is good enough to keep an accurate check on needles used, also methods which are used to keep this item as low as possible.

We would like to hear from some of the other readers of COTTON as to what they have done, or are doing, to keep their needle bill down as low as possible.

I am sure this is a subject in which everyone is interested, and a general discussion of it would, I believe, show us where we can save on the needle bill.

CONTRIBUTOR No. 4618.

Operating and Adjusting the Banner Knitting Machine.

PART SEVEN

IN this, the seventh article of this series, the writer begins a discussion of common, every-day difficulties arising in the operation of the Banner knitting machine. In previous installments he has covered the subjects of setting up and adjusting various parts, etc., as well as the care of needles. Clipped copies of previous installments will be sent to those requesting them.

The Editor cordially invites all readers to discuss any point covered in this series, with the idea of presenting different methods and views on these subjects. Address your letters to the Knitting Kinks" department of COTTON.

EDITOR COTTON:

I will continue my discussion of common difficulties on the Banner knitting machine with the subject of

Loose Course.

When the loose course is too loose it causes trouble, not only on the knitting machine, but also when looping, due to the stocking slipping off the points of the looping machine, especially if the work is hand-raveled. Many mills do not make a loose course, but when it is made, there should be very little bounce to the machine as it snaps out of the toe onto the loose course cams. Good results are secured by having this cam inclined up at the rear end, rather than down. If the machine bounces, it is likely to cause drops and often large cut-outs. The pull-down take-up wire (100) should snap down freely, and not lag, which causes the yarn to loop in the take-up, making cut-outs. Some machines are equipped with a small weight on the end of the take-up wire (100) to overcome this looping. The carrier ring should be low, both on the heel and the toe so that the catch openers do their duty, but when too low, there is a chance for the sinker cap to rub against the carrier ring and bind, causing the sinkers to come in under the yarn, making cut-outs. When the sinker cap is advanced too much the last sinker will get under the yarn, making small holes in the corner of the heel or toe, and the cap should be adjusted by means of a bumper screw. The rear stitch cam and side cam not being properly gauged causes undue tension on the yarn when snapping out of the heel and toe, which makes large cut-outs. The cam block clamps being too loose, allowing the cam block to wobble on the toe, will cause trouble in the loose course. The fingers must be regulated to clear the needles, and the carrier ring must fit close to the needle line so that there is no room for a latch to close, as one closed latch will loop the yarn around several needles when making the loose course.

Yarn Changes.

When the yarn binder will not hold silk or rayon due to the binder or binder plate being worn, a successful remedy is to fill the binder plate with solder where the binder seats and then polish the new seat smoothly. The side of the binder towards the fingers should be rounded, so as not to cut the yarns, but the other side should have a straight edge. If the binder is too sharp or has nicks, and there is too much ten-

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We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

IDENTIFICATION BRINGS

Investigation by independent research organization reveals important results achieved . . . . . .

THE Eagle and Phenix Mills of Columbus, Ga. are manufacturers of a high grade cotton cloth that is widely used for work clothes, trench coats and sportwear.

A few years ago, this company decided to place its "Eagle Rock" trade mark on every yard of fabric. That was early in 1927. Less than 2 years later, in the Fall of 1928, the A. C. Nielsen Company of Chicago, an independent research organization, sent one of their engineers down to Columbus to determine the value of this trade-marking policy.

This engineer interviewed Mr. H. O. Davidson, Vice President of Eagle & Phenix Mills. He went into the plant and saw the fabrics being made and marked. The facts he learned are so important that they bear study and consideration by every executive in the cotton industry.

What the Engineer Learned

This engineer found that in the Eagle & Phenix Mills, results have far exceeded all expectations. Thanks largely to its trademarking policy, Eagle Rock has achieved leadership in the face of severe competition. In spite of a saturated market, Eagle Rock sales have shown a constant increase in volume. Customers demand the genuine and clearly identified goods. The effectiveness of the advertising has been considerably increased. To understand the significance of these results, it is necessary to understand the reasons back of this company's decision to brand its fabrics.

According to Mr. Davidson, trademarking was decided upon for several reasons. First to identify the product and thereby make the company's advertising effective. Second to prevent substitution of inferior goods. Third to protect the company's position as originators of this unique material.

From the first, Eagle & Phenix Mills looked to Kaumagraph Company for assistance in designing and applying a trademark. Dry transfers were found to be best suited for applying the mark, and Kaumagraph Dry Transfers were selected, says Mr. Davidson, "largely on the basis of their manufacturer's established leadership in this field."

How the Trade Mark is Applied

The Eagle Rock trademark is applied at intervals of about one yard along the selvage of the goods. Application is made by machine at the rate of 20 Kaumagraph transfers per minute—3,000 yards of suiting per hour. A single operator, whose duties also include handling the material before and after marking, completes the trademarking in a little over half a day.

One of the most astonishing facts established by the Nielsen engineer was the low cost of trademarking.

PROSPERITY TO LARGE COTTON MANUFACTURER

Applying Kaumagraph Transfers by machine in the plant of the Eagle & Phenix Mills, Columbus, Georgia.

by the Kaumagraph method. He figured not only the cost of the transfers, but also the original cost of the machine, maintenance, repairs, depreciation, interest charges, labor costs, power costs. Yet all these charges considered, the cost of applying a trademark with Kaumagraph Transfers is barely a tenth of a cent per yard!

An offer to help you . . . .

The success achieved by Eagle & Phenix Mills is being duplicated today by progressive manufacturers throughout the textile industry. Many of the most conservative companies, realizing that buyers have become accustomed to purchasing by brand identification in other fields, are now finding it good business to trademark their cotton fabrics . . . and Kaumagraph is helping them.

For 27 years the Kaumagraph Company has been the headquarters of the textile industry on all matters of trademarking and identification. Many of the most famous textile trademarks were designed in cooperation with Kaumagraph . . . and are applied with Kaumagraph Transfers. Just as we have helped hundreds of others in allied lines, we stand ready to help *you* to design a trademark, register it, and apply it to your goods.

Would you like to receive a copy of the Nielsen engineer's report of the Eagle & Phenix Mills? We shall be pleased to send you a copy on request, without obligating you in any way.

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Boston . . . . . Chicago . . . . . Philadelphia
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Paris, Ont. . . Paris, France

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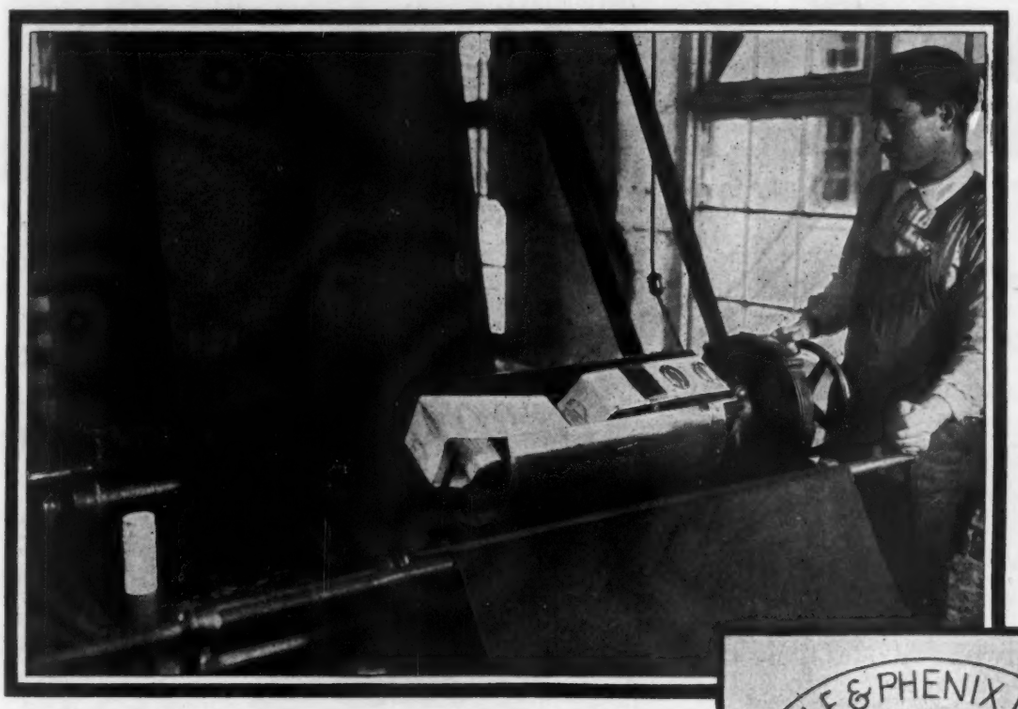

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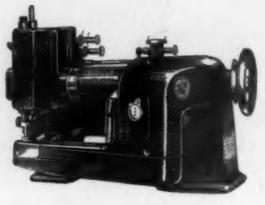

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sion on the spring, it will cut the yarns. The drum cams and binder cams are cut so that the finger drops the yarn into the needles before the binder opens. If the binder plate is higher than the throat plate it will allow the yarn to loop over the needles. The binder plate should be adjusted as closely as possible to the needles at the yarn change point, but care must be used to see that it does not strike or rub the sinkers. Too much tension on the yarn will cause the yarn to pull out of the binder at changing, instead of taking the yarn from the cone and when the finger is raised, releasing the tension, it allows the yarn to loop or tangle.

When the fingers are not adjusted as high as necessary, the yarn does not get sufficient throw, and will ride under the binder plate instead of over it and under the binder. (This applies especially to machines with striper attachment. The fingers are always set for the heel and toe and then the striper finger rods are adjusted to give the fingers the proper height in run-down.)

Quite often the binder lever (109) rides up on the cam, allowing the knife to remain open, and not cutting the yarns which drag down inside of the stocking, making it pucker and offering the opportunity for a smash. This likewise occurs when the binder lever hangs on to a cam, and a little should be ground off either end of cam, as necessary. When the binder closes too soon, allowing the yarn to ride over the binder and the knife, then either the lever cams or drum cams are too short, and longer cams should be put on where necessary. The yarn binder lever 180 becomes worn at the connection of the shoulder screw on the rod 570, allowing the rod to raise without opening the binder. If the adjustment cannot be made on the rod guide (192) without binding the rod, which causes unnecessary wear on all parts, the lever (180) can be shortened by squeezing it in a vise.

The knife shoulder screw or spring gets out of adjustment, allowing the yarn to be frayed instead of clean-cut, which in due time would jam the knife and allow the yarn to slip through it without even being torn or frayed. The usual remedy is a new knife.

A nick in the finger or on the binder plate will hold the yarn and prevent its getting under the binder and knife properly. On the looper round, if the pulling-out cam is too long, it will raise the finger high enough for the yarn to ride over the needles, allowing it to bunch in the finger or around the binder plate, often breaking needles or causing a smash. This cam should be cut to the proper length.

BANNERMAN.

(This is the seventh article in this series. The next will appear in an early issue. Copies of preceding installments will be sent upon request.—The Editor.)

Two Interesting Pamphlets.

The Associated Knit Underwear Manufacturers of America, Proctor Building, Troy, N. Y., have just had published two very interesting little pamphlets. One entitled, "Knit Underwear by Seasons," and the other, "Durene," a new name for a known yarn of superior quality. The first mentioned pamphlet gives a very good discussion of the proper underwear for each of the four seasons, while the second one tells how Durene yarn is made and its characteristics.

Corrects Article on Banner Machines.

In connection with the series "Operating and Adjusting the Banner Knitting Machine," we are in receipt of a letter from the Hemphill Company, manufacturers of the Banner machine, with regard to a paragraph appearing in this series in the June number on page 980 under the heading "Heel and Toe Defects." The text of the Hemphill Company's letter follows, and we are pleased to publish it in this connection.

The letter, signed by Robert H. Lawson, Director, is as follows:

"The matter has been brought to our attention in regard to the paragraph in your June issue of COTTON, page 980, under the title of 'Operating and Adjusting the Banner Knitting Machine,' the paragraph in question reading as follows:

" 'On diagonal and Jacquard sinker caps, a broken sinker butt not only causes tightness of the cap, but often breaks every sinker in the cylinder heads. Every precaution must be taken to have both regular and plaiting sinker cams properly adjusted and free from nicks.'

"We would like to inform you at this time that this particular answer is 'out-of-date' in regard to our present Jacquard machines. The cap of our present Jacquard machine contains two trackways, whereas formerly, we used three. On the former Jacquard it was necessary to have the trackways enclosed, but on the new machine, these trackways are now open. This applies as well to the dial as to the sinker cap. A broken butt now has immediate access out from the cap and will not lodge itself as to break others.

"This same feature has been used on the plain Banner machines for many years, and in fact, the cap for the new Jacquard machine and also the dial cap, has been designed exactly following the design of the sinker cap that has been used so successfully on plain Banner machines.

"With regard to nicks on the sinker cams, we wish to call your attention to the fact that it is always necessary to keep the sinker cams free from nicks, if good work is to be obtained."

EDITOR COTTON.

Which Side of a Belt Should Go Next to the Pulley?

EDITOR COTTON:

Referring to the article, "Belting on the Knitting Machine," by "CONTRIBUTOR NO. 4103," page 973 of the June issue of COTTON. I wish to state that this contributor is wrong in saying that the tanned or outer part of the belt is the toughest part of a belt. It is true that the tanned or hair-side of the belt could go next to the pulley (I presume he means the hair-side) but the hair side is the weakest side of the leather belt. It has been proven many times in actual strength tests that the fibrous flesh-side of the belt is stronger than the finer grained hair-side.

In these tests the belt was split through the middle so that the flesh side was of the same thickness as the hair side. The halves were then put in a testing

machine and pulled to destruction, the strengths being carefully observed. For this reason alone the flesh side should always be run on the outside. It is best to let the weak side wear away first, and that is what happens when one places the hair side next to the pulleys.

CONTRIBUTOR NO. 4624.

Which is the Best Type of Humidor?

EDITOR COTTON:

We are manufacturers of full-fashioned hosiery, and read your articles on this subject each month. We should like very much to have some of your readers discuss a question in which we are very much interested at this time. We are wondering which is the better type of humidor for use on full-fashioned machines—the box or the jar type. We should appreciate it if some of your correspondents would outline their preference along this line, going into detail to explain the reasons why they prefer the one or the other.

CONTRIBUTOR NO. 4601.

This Knitter Likes "Old Timer."

EDITOR COTTON:

I have read with a great deal of interest the article by "OLD TIMER" in the April issue of COTTON—"Would You Hire Yourself for Your Job?" In fact, I have read it many times, and studied it, and now, after some weeks, I will attempt to answer this question. But first, I will say that "OLD TIMER" is one of the first features for which I look when my copy of COTTON comes in, and many times I go over some of his sayings before starting the days' work—for instance, this seven-word question, and others.

I have been working in a hosiery mill for the last fifteen years, as fixer, foreman and superintendent, and in all that time, I can truthfully say that I was on the job an hour before the whistle blew in the morning, ready to say good morning to the help as they came in. In passing, will say that a good foreman will be on the job before the whistle blows, as the early morning is the best part of the day to give to one's job and employer. The mind works better at that time; that is, if the mind and brain have had a good rest the night before. I have worked with men who would stay out until one and two o'clock in the morning, and then ask me how I could always come in so early, and smiling.

Yes, I believe if I were a mill owner, I would hire such a man as myself for my job. But I still have a lot to learn. This question has made me do a lot of heavy thinking. I can always find something to do. For instance, that new girl who has just started in; I must see how she is getting along, and see if she likes the work, and if the loose course in the tops are right. And, over there is a knitter who is not coming up with her production. I must see her and try to give her a word of cheer and instruction. The fixer also has trouble at times, and must be shown and encouraged with a kind word or a smile.

I believe the men in the mills, and the country in general, need all the help possible from the other fellow, and this reminder, worn where it can be seen often, would be of great assistance in keeping one's mind on this worth-while thought. However, many of our foremen, and others, do not wear hats. During the late war, many men went to the front with their Bibles carried over their heart. Why wouldn't this be a good place to carry this question?

One of the things which I believe makes me hold my job is thinking of the other fellow; thinking of the customer who buys our product; trying to turn out such good work that he will be back with a repeat order. That is what keeps the mill running.

There are men who work only with the idea in view of getting their pay on Saturday, and who, by Monday morning, have nothing to show for it; who are looking for someone from whom they can borrow a chew of tobacco or the price of a plug. I have seen that kind, and "OLD TIMER" has too, I suppose, but I can truthfully say that that is not my idea of a job, and though, as I said in the foregoing, I have a lot to learn, I believe I would hire myself for my job.

CONTRIBUTOR NO. 4623.

Preparing Silk for Full-Fashioned.

EDITOR COTTON:

Replying to the inquiry of "CONTRIBUTOR NO. 4125", with reference to preparing silk for full-fashioned knitting, would say that by the nature of his questions it is thoroughly possible that he will find himself more confused after getting all the various answers he may receive than he was before he asked his questions.

In answer to his question regarding the relative benefits of using a sulphonated prepared oil, a combination of neatsfoot oil and olive oil soap or olive oil and olive oil soap. Will say that he will find at least three schools of thought, all equally positive in their convictions. One holding to technically prepared oils by compounding chemists, another making up his own solution of neatsfoot oil and olive oil soap, and still another with his pet formula of olive oil and olive oil soap, and each one convinced of the superiority of his product.

Back winding solutions are best worked out by each local mill. Variations in local water conditions makes it practically impossible to produce a uniformly satisfactory back winding solution.

A back winding solution of glycerine base can usually be used to good advantage in knitting rooms that have no humidifying systems. Back wound silk should never be allowed to stand several hours after being back wound unless the yarn is to be stored in a satisfactory conditioning room where the moisture content of the air can be kept at a satisfactory point so as to prevent either drying of the yarn on the surface or sticking on the cone.

A very soft wound cone is objectionable as it permits a too rapid drying out of the silk and has a tendency to cause sloughing off of the yarn while being handled or while in the process of knitting. A back wound cone should have a soft touch, but should not be too spongy.

CONTRIBUTOR NO. 4133.

Securing a Smooth Feel on Rayon.

Recently, a subscriber submitted two swatches of rayon half-hose, made by plaiting rayon over cotton yarn. One of the swatches was harsh, while the other had a softer finish, which, it was stated, was more desirable. The mill makes all of its goods ingrain and dyes the rayon and cotton yarn at the plant, so that it is possible for them to treat the yarn to give it maximum softness. The inquirer desired suggestions as to eliminating the harshness in one of the samples.

The samples were submitted to two readers and their comments are published for the interest of other subscribers.

One of the men pointed out that in the sample which had the softer feel, there seemed to be more cotton in the makeup: and in the other design, there seemed to be more rayon, which apparently would give it the harsher feel. He suggested using a different kind of rayon where the larger amount was used. In his opinion, Tubize silk can be finished much softer than Viscose rayon, while the former is much harder to dye in combination with other fibers, by itself it is very easily dyed, and it can be made much softer. He continued his suggestions as follows:

"There are several ways in which rayon can be made softer after dyeing, however, it can never be made as soft as real silk; that is, it has never been done yet.

"In the softer of the two samples, it is apparent that its elasticity is also greater than in the harsher ones, which means that the way it was plaited has a good deal to do with the final finish of the hose. Another remedy would be to use a softer yarn.

"In dyeing any kind of rayon yarn, salt should not be used. Glauber's salt is much better. Most sulphonated oils have a tendency to impair the elasticity of rayon, and should be used only when absolutely necessary to retard the absorption of dyestuffs or to reduce the shade when too dark to match the pattern. In finishing, a soaping with olive oil soap of good quality is beneficial, and in the final wash, a one per cent of Monopole soap left in the goods will improve the softness of the rayon.

"Any rayon should be dried with a very moderate heat. If it is possible, it should be dried in cold air for best results, and that means that too hot boards when the hosiery is finally boarded should be avoided.

"A good softener for rayon yarn can be made up right in the dyehouse and used in the last and finishing wash. After the yarn is dyed and rinsed, one pound of olive oil soap is stirred with one pound of carbonated soda (soda ash) in a three-gallon pail, two gallons of water are added and the whole boiled for a few minutes. In a vat full of water where the goods are to be finished, a little acetic acid is added and the olive oil is poured in and stirred well. The goods are entered and turned quickly several times, then wrung out and finished. The percentage of oil can be increased to 2 or even 2½, the rayon being a 'hog' for absorbing oil and retaining it."

The problem was submitted to another man for his opinion, and he pointed out that the softening of yarn depends a good deal on the type of dyeing machine; he said that the package type of machine is the hardest in which to soften dyed yarn. He also said that skein or warp dyeing machines are much easier to soften yarns in.

This man further pointed out that the type of dyes used must be considered also, as direct colors will not stand a hot softening bath as will acid, sulphur or Chrome colors. Therefore, a soap compound softener, in his experience does not usually do the work, as it has a tendency to strip the color, breaking up in a pressure softening bath. It was his opinion that very few sulphonated oils are of good softening power.

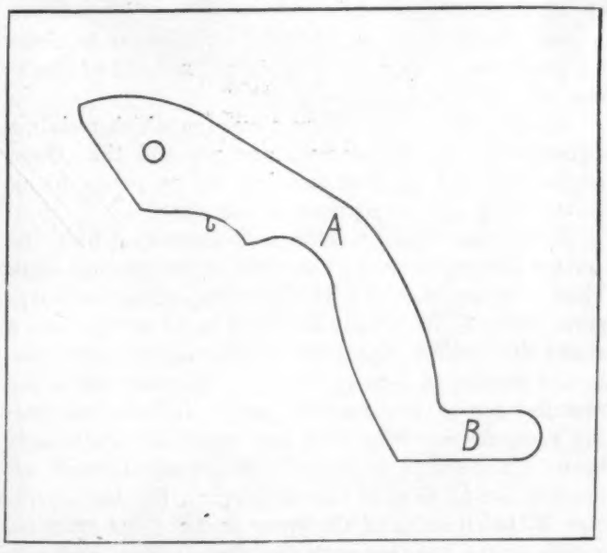
Any other readers desiring to offer suggestions along this general line may submit their communications to the "KNITTING KINKS" department of COTTON.

Plaiting on Pointed Heel Stockings.

EDITOR COTTON:

I have recently been reading up on the subject of plaiting trouble on pointed heel stockings, brought up by "CONTRIBUTOR 4109" in his letter in a recent issue of COTTON, and would be glad to offer a few suggestions. With reference to the six-finger attachment, I believe I can help him out a little if he will follow my instructions:

First, throw two sinkers in with the left hand bumper; bring the sinker cam in until the throat of



the sinker is flush with the back of the needle.

Second, bring the picking finger just as close to the needle as possible without giving trouble. Sometimes a new finger is too short on the six finger attachment. If it is not long enough, heat the finger at *A*, in the accompanying sketch, and stretch as much as is necessary to bring it up to the needle. That will probably throw the eye of the finger above the needle hooks; if so, heat the finger at *B*, and bend down just enough for the plaiting yarn to catch the needle hook without missing. Put just enough tension on the body yarn so that it will not give trouble about bursting or injuring the needles and sinkers.

This practice has given me 100 per cent satisfaction.

CONTRIBUTOR NO. 4615.

Cleaning and Oiling Full-Fashioned Machines.

EDITOR COTTON:

I was very much interested in reading the question asked by one of the contributors as to the various systems used in connection with the cleaning and oiling of full-fashioned hosiery machines. He states that this matter may seem trival, but I can assure him that the proper cleaning and oiling of full-fashioned knitting machines is a very important factor in connection with the manufacture of full-fashioned hosiery.

I have been in the full-fashioned hosiery business for many years and can safely say that 90 per cent of the breakdowns and smashes on a knitting machine are directly or indirectly caused by improper cleaning or the lack of oil.

There are several systems used in the cleaning of machines, but any of them are useless unless the work is done properly by the one who does the cleaning.

I operate what might be called a small plant, and my knitting machines are run day and night. The day shift works five and one-half days and the night shift works five nights a week. We operate only half a day on Saturday, closing down at noon. The knitting machines are stopped each Saturday morning between 10:00 and 10:30 o'clock and each knitter must devote at least one and one-half hours to the proper cleaning of his machines. We do not ask the night shift to do any cleaning as we find that it is better to clean the machines by daylight. As to the method of cleaning, we use the following:

We purchase wipers from a concern which reclaims discarded cotton underwear, and we find that these wipers are best adapted for cleaning purposes, being knitted they are softer than woven cloth.

In the cleaning of machines we insist that first, the knitter thoroughly clean the felts in the tension cups. Then he must clean the tension wires, rings and snappers. This is important as these parts accumulate a sticky dirt, which causes the tension not to work freely and results in selvage trouble. He then cleans the so-called top of the machine, which includes narrowing rods, carrier rods, slur bar, catch bar and sinker heads. The shafts near the table are also cleaned, especially for loose ends and clippings. The last operation is the cleaning of the lower parts of the machine, which means the thorough cleaning of cams and rollers. Both the front and back of the machine must be cleaned. Our building has a wooden floor and our machines are placed on sheets of tin that are nailed to the floor. After the machine is cleaned we have the tin cleaned; a mop is used for this purpose. We are very critical in regard to loose ends and clippings being cleaned out of every part of the machine each week, as we find that loose ends and clippings will work into the bearings and rollers. These will, at times, cause breakdowns and smashes, as well as wear out the cams and rollers of the machines.

The foreman of the knitting department is held responsible for the proper cleaning of the machines, and no operator is allowed to leave the plant until the foreman has inspected the operator's machine and states that the machine has been cleaned satisfactorily.

The oiling of the machines is done on Monday mornings and the foreman also passes on this before the operator can start. Every bearing and oil hole must contain oil and we find that it takes about fifteen minutes to thoroughly oil one machine. The inspection can be done quickly, as each hole will show an overflow of oil and whenever this does not show we know that the operator has been careless in the oiling of the machine.

In our plant we have very few breakdowns and we attribute this to the careful inspection of our cleaning and oiling methods and on insisting that it be done properly. Some may consider that approximately two hours is too much productive time lost, but my experience has taught me that when one considers the expense and loss caused by breakdowns, as well as the depreciation of the machines, due to the lack of oil and the improper cleaning, that losing two hours a week, will, in the course of time, pay back all this loss with interest.

CONTRIBUTOR NO. 4081.

How Can These Rust Spots be Removed?

EDITOR COTTON:

We will appreciate it if you will secure for us through your "KNITTING KINKS" department some information that may also be of interest to other hosiery manufacturers.

We have some full-fashioned hosiery legs which have been spotted with rust off of metal racks during the process of drying. These spots are anywhere in size from small spots to spots of ½-inch in diameter. If anyone can give us any treatment to remove or help finish these goods it will be greatly appreciated.

CONTRIBUTOR NO. 4603.

Loose Selvages and Drop Stitches on Full-Fashioned.

EDITOR COTTON:

You published in the June issue a question from "CONTRIBUTOR NO. 4572" who stated that he was having difficulty making a loose selvage and drop stitch on narrowing in the heel tabs on a full-fashioned stocking.

This man submitted a sample, which I had the opportunity of examining. He explained in his letter that he had checked over the coulier cam gear brake and brake shoe; cam shaft shift regulating brake; shogging cam timing; friction boxes and leathers; carrier stops and carrier settings; snappers, drop wires, tension rings and pads. He indicated also that he uses 12-thread silk in the heel, and has tried two six-strand threads as well as a single thread of twelve strands and resorted to all kinds of tensions for improvement.

It is evident from what he said that the inquirer seems to have a thorough knowledge of his machine and the necessary adjustments to correct the trouble, but he has undoubtedly overlooked a wrong adjustment on some of the parts mentioned. The sample which he sent clearly indicates that either the carrier or the tension is not properly functioning, and points more

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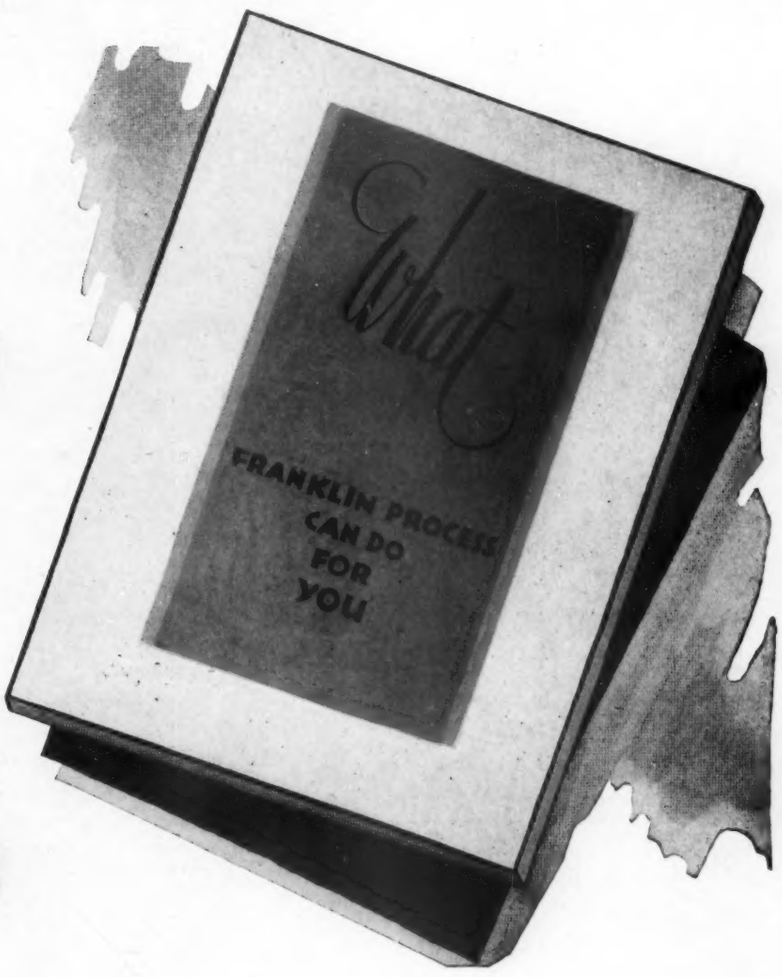

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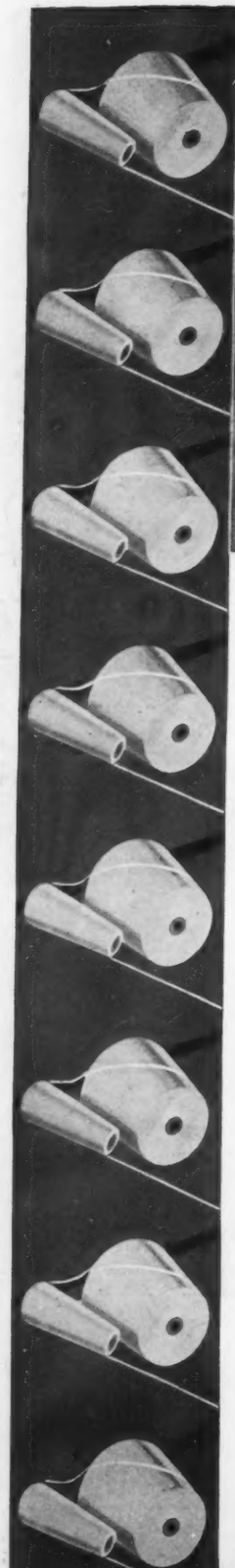

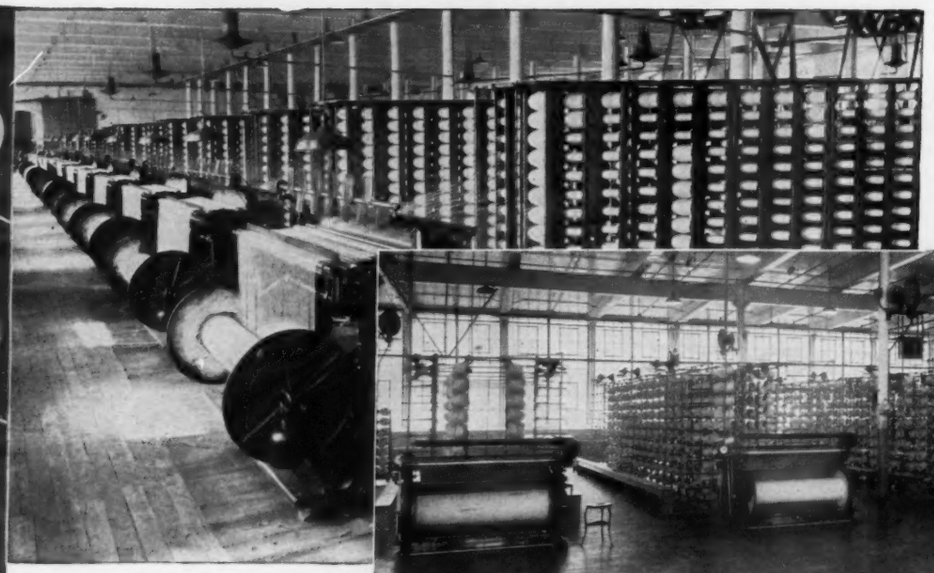

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strongly to carrier trouble. Probably the carrier stops are not adjusted so as to make a uniform travel of the carrier in both directions. Any way, a proper adjustment of all parts to which "CONTRIBUTOR NO. 4572" refers will certainly eliminate the trouble.

I notice that 12-thread silk is being used, and that the stitch is very tight. Twelve-thread silk is pretty heavy for a 42-gauge machine, which is what he indicates he is using, and the machine will certainly have to be adjusted to a comfortable stitch. It is also noted that the narrowings are carried out on every course of the machine. Unless this is done for some definite reason, I would suggest that the narrowing gore be lengthened and the narrowings made every other course rather than every course. This change, together with a slightly looser stitch, I am sure will go a long way toward correcting the trouble which he is having.

CONTRIBUTOR NO. 4574.

Spreaders on Underwear Machines.

EDITOR COTTON:

Recently in "KNITTING KINKS," a contributor asked some questions about the spreaders used on underwear machines, for giving width and tension to the cloth as it is knitted and taken up on the roll. He wanted to know what influence the taking in and letting out of the spreader would have on the finished width of the cloth after bleaching.

He said he had found that letting the spreader in gave better knitting results, and did not affect the stitch or the finished width after bleaching.

A knitter may use a spreader for his own method of correcting a fault in the machine, but never to board out to a larger size, regardless of cut or fabric, be it light, medium or heavy; from 10s to 38s single cotton yarns.

A spreader will at times correct faulty take-up or lug and should at all times be used when the fabric is not put in a box or can, that is, when put on rolls by a lower rolling device, installed on some knitting machines.

Some machines are equipped with a rod or some device whereby the cloth can be brought up directly after it leaves the take-up and over this rod, then down to the lower rolling device. If this be the case a spreader is not necessary.

The use of a spreader of greater width than the actual knitted cloth does not have any bearing on the cloth in bleaching; if anything it produces a poorer appearing fabric.

It is a known and proven fact that all knitting machines, regardless of cut, knit from one to two inches narrower than the actual size of the cylinder and it will come back to that original width if not in the course of manufacture, then in the store or on the counter.

My experience after various tests over a period of years with spreaders is that unless a spreader of the same size as the cloth when about to go into the rolls of the take-up is used, more harm than good is accomplished.

A properly knit piece of fabric has elasticity and will therefore fit snugly even if one to two inches narrower. Supposing a garment lies out flat measuring twelve inches across, that width will easily fit a five- to six-inch larger form and not be stretched all out of proportion. The great trouble in the majority of cases in knitting is that the tendency is to board out either at the knitting machine or at the bleachery. If the boarding is done at the bleachery, the fabric must be steamed and boarded and then rolled in order to hold the width; and even then, if extreme widths are demanded, the rolled cloth will vary when unrolled.

A great many bleachers spoil good knitting by taking the life out of the cloth, and if the manufacturer does not insist on the correction of this by the bleacher it is his own sorrow.

A properly knit fabric with a corresponding bleach will be just as elastic as when it comes from the machine. First, knit an elastic piece of fabric, then see that it is properly bleached and dyed and boarded to its original knitting width, and you will find a gain in yardage as well as a satisfied customer.

When cloth is sent to the bleachery, be it on rolls or not, this cloth is unrolled as it goes into the kier in one continuous string-like mass, and boiled, and to what extent after all would the use of a spreader larger than the actual knitting be? I fully agree that a spreader of the correct size is the only kind to use. I rather would recommend a ring half way between the cylinder and take-up with smaller inside circumference than the cylinder with the fabric sort of squeezed together before going into the take-up rolls for producing an even and elastic piece of fabric.

B. P. R. (PA.)

Disagrees With Dodson on Dyeing.

EDITOR COTTON:

In June COTTON I read an article on dyeing hosiery by Mr. Dodson that was really interesting. So much so in fact that I read it a second time, then I passed it to my assistant to read and comment on. After going over it a third time I decided that, with the Editor's consent, I would offer some criticism, hoping it will be appreciated by the readers of COTTON.

The writer's intention is not to criticize one method in favor of any other. A dyer will use in his works the method he is best acquainted with to obtain results in his locality and with the equipment and facilities at his command—but to state that one method is the safest because "the dyer can not depend absolutely on his instructions being carried out by his men," is not proper. If any dyer allows such a condition to exist in his dyehouse he might as well go out of the business. He must learn first of all to teach his men to do exactly what he tells them or quit.

The Degumming Bath.

In degumming Mr. Dodson gives his readers three ways of preparing a bath with percentages of soap or oil and chemicals based on the weight of the goods. As his article is on dyeing silk hosiery it may be assumed that he means hosiery made up of silk for the most part; in fact today the manufacturer stresses the point in his advertising "Silk to the top" for his hosiery and

considerable less cotton enters the hosiery today than a few years ago when fully 50 per cent of the stocking was of mercerized cotton.

That being the case the amount of soap he advises to use in making up a boil-off bath—"8 to 12 per cent of a good neutral chip soap"—falls considerably short of the amount that is actually needed for a thorough boiling off of the silk. Double that percentage would be nearer correct and it should not be based on the weight of the goods, but on the amount of silk in the goods.

Having boiled off silk goods in every form for over 30 years the writer is in a position to know positively that from 25 to 30 per cent of soap or its equivalent of boil-off oil is absolutely necessary to boil-off silk. Any well qualified silk dyer will bear me out on that point, I think. Silk dress goods, ribbons, skein yarn, etc., are not nearly as hard to boil-off as hosiery where thin and thick places are knitted in it, are boiled in bags and liable to be knotted up in balls where the degumming bath has difficulty in reaching and do the work; given a weak soap bath rendered weaker as the work proceeds by the sericine, discharging in the bath together with the other impurities: Throwster softeners, knitters' lubricants and by the "small amount of water constantly entering the bath during the hour of boiling," I can assure my reader that satisfactory work will not be obtained.

In an argument some time ago it was contended that the boiling off could be done with half the amount stated here by keeping the water low and letting the foam do the stripping, but that argument does not hold good here because the writer of the article under criticism positively states to keep the bath overflooding during the operation.

Mr. Dodson said that "the boil-off operation is considered by many dyers as of no especial importance," but he advises that he always felt that it deserves and requires equally as much care as the actual dyeing. When we read that, we readily agreed with him but we could not help feeling that any silk dyer that took such an attitude towards the boiling off of silk could not possibly have had much experience in silk dyeing, because we know and proclaim unhesitatingly and emphatically, without fear of contradiction, that the boiling off is the most important part of silk dyeing in any form, and not until the dyer gets that fact thoroughly digested can he aspire to produce good work dyeing silk hosiery.

The results of incomplete and improper boiling off, as stated in the article in question are correct, but nothing was said about the real damage done to the silk hosiery. The feeling is impaired, the closely knit splicing and reinforced places in the hosiery will be found to be hard and unyielding; no amount of boiling will correct that, nothing but a quantity of soap added to the boil-off bath will remedy it, so why not use enough soap right at the start and make sure of a good job?

Dyeing in the Boil-off Bath.

Using this method of dyeing hosiery, Mr. Dodson would make us believe, a lot of hosiery could be boiled off and dyed at the same time in the same bath in 45 minutes. Assuming that everything is done according to Hoyle, thirty minutes boiling with the soap and the dyestuffs in the bath and fifteen minutes after entering the salt the shade and the softness is obtained and the lot is washed and finished. Any ordinary dyehouse running now on full time working with any other method would be wasting money by not adapting that method of dyeing, reduce the working force and working the remaining hands only part time.

Dyeing in a Separate Bath With Acid.

With this method, according to Mr. Dodson, the goods are boiled off first, then in the wash a little acetic acid is added to the rinsing water, for what reason is not stated except that he has seen it in successful use in a full-fashioned plant in Philadelphia.

The writer of this criticism has seen many things done in dyehouses to confuse the onlooker and has come to the conclusion that dyers and finishers are not given to let on how they do their work to every Tom, Dick and Harry. I could narrate a number of occasions when things were done for my special benefit that were not on the ordinary day's program. I have also seen men acidify the rinsing water of boiled off silk goods in open vats with sulphuric acid without anything wrong happening, but on one occasion, we put a quart of acetic acid 28 per cent strength (which is the ordinary strength used in the dyehouse and not 36 per cent) and what happened to 200 pounds of hosiery convinced us not to try the experiment again. We did flood off the top the scum and fat that formed in that acidified rinse, but hosiery has a bad habit of acting as a filter for all kind of loose stuff that may form in the bath and hold it tenaciously within. The only way we could get rid of that greasy accumulation was to thoroughly emulsify it and wash it out again.

And, finally, I must say that Mr. Dodson's idea of dyeing hosiery with acid is novel to me, and it has been my lot to work alongside of dyers from all over the country and in several countries in Europe, but I never have heard of putting acid in a boiling dyebath for silk. No matter how diluted and how carefully it is put in it is going to cause mischief. The only way to use acid successfully in dyeing hosiery is to let the goods absorb most of the dyestuff by first boiling for twenty or thirty minutes then add the salt and work again in the cooling bath, when the bath is at around 150 degrees F. the acid may be entered with impunity and the bath raised to the boil again. Let me say in conclusion that I have seen this done for over ten years in one dyehouse.

FARBER.

Fidelity Makes Announcement.

Fidelity Machine Company, 3908 Frankford Avenue, Philadelphia, Pa., have issued an announcement in connection with the agreement into which the company recently entered with an important manufacturer of infants' hosiery and organizations associated with it for the exclusive use of one type of one style of the Multi-Design Machines manufactured by the Fidelity Company. The company points out to the trade that this agreement in no way covers the general classification of Multi-Design Machines, covering only one type of machine for one particular class of work; for example, they point out that they are doing a very substantial business on ladies' anklets on the same style S-13, and also on fancy tops for men's half hose.

Thread Hanging on Looper.

EDITOR COTTON:

Here is a question upon which we should like to get practical ideas of some readers of "KNITTING KINKS":

We are having some trouble with Union Special seaming machines, with the thread hanging on the looper as we run off of the stocking at the toe, and have the same trouble as we finish the stocking at the hem.

Any suggestions which your readers can offer as to remedying this difficulty will be sincerely appreciated.

CONTRIBUTOR No. 4602.

23% Versus 25% Boil-off Oil.

EDITOR COTTON:

In reply to the question of "CONTRIBUTOR No. 4074," appearing in a recent issue of COTTON, regarding the comparative value of 23 per cent boil off and 25 per cent boil off on pure silk, would say that the comparative values depend entirely upon what is desired to be accomplished.

Generally speaking, we believe that 25 per cent is always best for seamless machines, and 23 per cent or less is better for full-fashioned machines. It is, however, thoroughly possible to adjust either 23 or 25 per cent boil off to both types of machines. So the most important thing to take into consideration is the condition on which silk is purchased. If "CONTRIBUTOR No. 4074" is buying his silk in skeins and having his throwing done by a commission throwster and has specified 25 per cent boil off, the excess boil off is not an item of cost to worry about; but if he is buying silk on cones and paying the price of silk for the excess boil off, he should at least realize that he is paying a pretty high price for soap and oil.

In the operation of full-fashioned machines it is desirable to have the silk thoroughly wet by back winding and allow enough time for silk to thoroughly soften before being run. From the fact that excessive boil off is more difficult to penetrate with moistening solutions, and from the further fact that it is more liable to flake off after being wet, it is generally found more desirable to have silk for full-fashioned machines made with 23 per cent boil off or less.

On seamless knitting wet silk does not lend itself favorably for the operation, and since there is nothing more helpful in making good fabric on a knitting machine than having the gauge of the machine well filled with yarn, it is ofttimes desirable to have a heavy boil for seamless knitting, which permits a better stitch control than could be had on low boil off yarns.

CONTRIBUTOR No. 4079.

EDITOR COTTON:

In answer to "CONTRIBUTOR No. 4074," who asks for the comparative value of a 23 per cent and a 25 per cent boil-off for knitting on 39-gauge full-fashioned machines. Assuming that our inquirer is interested in knitting the silk in the gum direct from cones of thrown silk, the terms will not have very much practical application when it comes to the knitting operation.

Silk is purchased on a basis of 23 per cent or 25 per cent boil-off. Usually a silk broker will allow a little shading in the price per pound when 25 per cent boil-off guarantee is allowed, because he is allowed two per cent more gum content.

With an allowance of 11 per cent for moisture, the gum allowance is either 12 per cent or 14 per cent, if we knit from 25 per cent boil-off. We must knit a little more weight of silk into the goods per dozen (actually two per cent) than we would if knitting with 23 per cent boil-off allowance, so as to have goods containing the same finished weight, because in the case of the 25 per cent allowance we have two per cent more gum in the goods as they come from the knitting machines than we have if we are using 23 per cent allowance for boil-off.

Another phase of this problem, or question, is this: the higher the content, the more difficult it is to make good fabric, due to additional harshness in the silk yarn. This is due to the fact that the higher gum content is more difficult to bring to the softness necessary for full-fashioned knitting. We have invariably found it most advisable to purchase silk on the 23 per cent basis; this is quite sufficient allowance, and we have usually found that any broker who asked an allowance of 25 per cent has done so with a "nigger in the wood-pile."

CONTRIBUTOR No. 4088.

Dyeing Rayon in Skeins.

(*Continued from page* 1128.)

friends, although doubtless their methods are as satisfactory to them as ours are to us.

After the dyeing operation has been completed, we wash one time in warm water. This rinse is used on all except the lightest shades, and is continued for five minutes.

After the rinse, the reels are raised and unloaded. The dyer seizes half the reel load in both hands, and plunges it into a soluble oil solution which we make up in half a barrel as follows:

25—30 gals. warm water.
3 qts. sulphonated olive oil.

This will soften about fifty pounds of rayon, and we then add three pints of oil and sufficient fresh water to the half barrel before we treat the next 50 pounds. In other words, we keep a standing bath of the softener. It is possible to treat the skeins right on the machine by making up the softener solution in the Monel tank, using eight to ten per cent of soluble oil; however, the dipping method is cheaper and from all our results, just as good. The winding is entirely satisfactory, the yarn works well and there is no oil odor whatever to it.

When we have thoroughly saturated each handful, the parcel of skeins is given a slight twist by the dyer to prevent tangling, and the parcels are placed in the extractor. When the extractor has been loaded and run about five minutes, the packages are taken out and hung on another horizontal brass pipe where the

skeins are separated and opened up by brisk shakes of a smooth one-inch brass pipe which has been threaded through them. Each reel load is treated in this manner, a rubber stick is run through the skein, and the stick hung on a truck.

When the truck is loaded with 50 pounds, it is rolled into the drying room, which is a home made wooden box 12 feet by 8 feet by 8 feet high, in which are steam coils. A ventilating fan is located in the roof to exhaust the warm moist air, and the skeins are dried at a temperature of 140 degrees Fahr. There are special dryers built for this purpose with a better production, etc., but so far we have not investigated them seriously.

It is just as well, at this point, to call especial attention to the softening treatment, and to the handling of the yarn after it leaves the dyeing machine, as it is in this phase of the work that all of our former troubles originated. In our machines the skeins hang loosely on glass reels. They are treated by the machine to a slow lifting and plunging, and turning movement which seems to have no injurious effect whatever. The movement is consistent, uniform and gentle, so in the event of snarled yarn, broken ends, and generally bad winding work, we have to look into the after-dyeing processes.

We have definitely decided that the best method of softening our yarn is as described; dipping by hand immediately after removal from the dyeing machine, and in a high quality soluble oil solution.

We tried using two to four per cent soluble oil in the rinse water on the machine, and found this was not sufficient; eight to ten per cent works perfectly, but as stated, is more expensive.

We also tried using no soluble oil in the rinse, and later soaking the skeins in a light mineral oil. We soaked the skeins after they had been dryed, then "whizzed" off, and caught the excess oil. We then hung the skeins for 24 hours before winding. They wound very well indeed, but held enough of the mineral oil to make them feel greasy and to give off an unpleasant odor. We also tried spraying them, after drying, with a mixture of spindle oil and kerosene, equal parts of each, but although the winding was satisfactory, the other objections remained.

Especial care should be taken to see that all objects such as sticks, trucks, shake out rods, extractors, etc., with which the yarn comes in contact after dyeing, are perfectly smooth and incapable of catching and breaking the fine filaments in the rayon strand. When some of these filaments are broken, they tend to fuzz up at the winders, and in bad cases they simply ruin the winding production. Our winding production on 300 denier rayon, on one occasion dropped from an average of over 100 pounds per day per girl, to about 45 pounds, and we found that this was almost entirely due to broken filaments. This breakage being caused by a set of rough sticks on which the yarn was hung for drying.

In the matter of these sticks, we find that a hard rubber covered wood stick about one inch in diameter is the best thing procurable. They are rather expensive as to first cost, but at ten times their cost they would still be cheap as compared to home made wooden sticks with no covering, or to bamboo reeds, etc.

Machine Dyeing the Only Safe Method.

Our entire mill is now on rayon fabrics, and for nearly two years we have done more or less of it. In this time we have tried hand dyeing, foam dyeing, and at last machine dyeing, and our troubles have at times seemed insurmountable. On hand dyed work, we were plagued with uneven shades as well as with only fair winding; on foam dyeing in a Swiss, tram-silk dyeing machine, we had fairly good winding, but we couldn't control our shades, and they weren't at all fast to washing. The labor costs on hand dyeing were high, and the space required for the tubs excessive. In hot weather, it was hard to keep the hand dyers up to production or to keep them at all.

We finally put in our machine and find that:

(1) Our labor costs are reduced a little over 50 per cent in the dyehouse.
(2) Our shades are level and as fast as direct colors can produce.
(3) Our floor space per 100 lbs. of production is reduced nearly 50 per cent.
(4) Our winding production has increased over 30 per cent.

In conclusion, and for the benefit of those who want details in a condensed form, I give below the method we now use.

Condensed Form

1. Thoroughly open up the white skeins, and load 5 lbs. of them on each reel of the machine.
2. Fill the tanks with proper amount of warm water and add 2 per cent of a good soluble oil. Lower the rams and wet the skeins thoroughly in this bath. This should not take over five minutes.
3. Lift the rams and add the previously dissolved dye, stirring it well into the bath.
4. Heat bath to 110° F., and lower the rams. Run in this bath 10 to 15 minutes and add half the required amount of Glauber Salt.
5. Run 10 minutes in the salt, lift the rams, raise the temperature to 170° F., and lower the rams again.
6. Run 10 minutes, lift the rams and add remaining half of salt. Lower rams and run 10 to 15 minutes.

The goods will now be up to shade *if* the dye formula has been correctly developed. This development should be completed as nearly as possible in the laboratory, and there *must* be a separate formula for each brand of Rayon. As you know, each Rayon Company has a different chemical method of manufacturing its product, and the various brands of Rayon will absorb any given dyestuff in a manner and quantity different from every other brand.

After the above dyeing process, the goods are given a light rinse of not over ten minutes, providing the shade is what is termed as a medium to a heavy shade. That is, from a cordovan or brown to a black. For shades like sand, champagne, nude, etc., no rinse at all is necessary as the yarn has absorbed practically the entire amount of dyestuff. In the event a rinse is necessary, the rinse water is run to the sewer, the tanks refilled with warm water, and 8 per cent of a good soluble oil is added to the bath. Use just as little water in this softening bath as possible, only enough so that the skeins get thoroughly saturated. Run five minutes, lift rams, take off yarn, and extract. The other and more economical method of softening is to make up a softening solution in a half barrel, using 2 to 3 quarts of the oil to 25 gallons of warm water. The skeins are taken off the reels by hand and dipped into the softener by hand, being sure to get them well saturated. The excess softener solution is squeezed back into the barrel, and the skeins carried to the extractor. A 25 gallon mixture should take care of fifty to seventy-five pounds of yarn. The extra labor involved is practically nothing, as it takes only a few minutes to treat a 50 to 75 pound batch.

The KNIT GOODS MARKETS

WITH weighty tariff questions of deep interest to manufacturers of hosiery to be determined, a proposed new wage pact and operating agreement for full-fashioned mills formulated but remaining to be tried out as to its practicability, the tranquility of a typical summer market interrupted by scattered strikes. and producers of nationally advertised branded lines of hosiery leading the procession in a downward revision of prices, the full-fashioned industry had a somewhat hectic experience in July.

The fundamental soundness of the primary markets is well indicated in steadiness and the orderly fashion in which adjustments of rates were effected. Distribution of women's full-fashioned silk hosiery increased during the month, according to offhand reports of manufacturers and merchants. A considerable part of the gain is ascribed in some quarters to sales of sheer seamless for simulating natural flesh color. While a great deal of what usually is referred to as bareleg hose has been taken by consumers, the full fashioned manufacturers have been more scared than hurt by the effect on their sales. In the absence of definite information on the subject, it seems within the bounds of propriety to say that competition with bare leg hose had nothing to do with the reductions in prices of full fashioned.

Circular Knit with No Back Seam.

Circular knit silk hose with no back seam and minus the high splice heel for women made its appearance commercially this year. It did not figure in the statistics of the Department of Commerce until a few months ago. Reports of identical manufacturers to the department show that production of seamless silk in April, last, was less by 12,000 dozens than in the corresponding month of 1928, and according to the figures for May there was a falling off this year of over 40,000 dozens from May a year ago. Taking reports of identical manufacturers for two months of this year when mills were operating to capacity on bareleg hose, April registered a gain of less than 15,000 dozens over March, while in May, output was a few thousand dozens less than in April.

Assuming the reports of manufacturers to the Department of Commerce are fairly representative of conditions among them, it cannot be shown by statistics that sales of bareleg hose have caused mills to lessen the outturn of full-fashioned. Again using the reports of identical establishments, there is shown a gain this year in full-fashioned for each April and May, over the corresponding months of 1928, that for April being 16 per cent and for May 15 per cent. It is true, stocks of full-fashioned, all classes, at the end of May this year were heavier, by approximately 75,000 dozens than at the end of April, while holdings of seamless made, all classes, were about 7000 dozens less.

There is little of significance to manufacturers of either full-fashioned or circular knit in the reports of production, shipments, stocks on hand, new orders or unfilled orders. The statements of hosiery department managers in leading department stores account for increasing sales of silk hosiery in June and July, a part of which is attributed to the movement of bare leg hose, but practically all of the department heads interviewed say their sales of full-fashioned have not declined from the summer of 1928, and observers on the streets are virtually unanimous in saying the proportion of bareleg stockings to the seamed is less than one in one hundred. It can be stated on authority that surveys made in leading hotels and on the promenades at northern seashore resorts disclose no greater proportion of the sheer seamless there.

The "Bareleg."

Concern of full-fashioned manufacturers as to the boasted popularity of bareleg stockings for the current season is pretty well a matter of the past, but there is perceptible some anxiety among certain representative mill heads over the question whether their acceptance by a considerable element of the consuming public this year may be the forerunner of a comeback for the stocking without the back seam, that is, if manufacturers have, as they claim to have done, solved the problem of producing the circular knit with proper elasticity for the top and snugness of fit for the ankle and foot. The plain back is, in a sense, a novelty, still at a stage where its future, like that of every innovation in its initial period, hangs on the whim of woman.

At least two manufacturers, one in the North, one in the South, are producing strictly seamless silk hose selling in representative stores at as high prices as full-fashioned of 45-gauge 4-thread with picot top from numbers of mills rated in the trade as among the better ones in their class. A seamless line from the Westcott Hosiery Mills, Dalton, Ga., is priced $1.95 a pair regularly in leading stores, and the Kitzmiller & Sons mill in Reading, Pa., is producer of a line features in like stores at $1.75. Both are in the bareleg class. Will medium service weight without the back seam command relative prices? This is a question in the trade. Most full fashioned mill chiefs say "No," while the optimistic among the circular knit fraternity answer in the affirmative. That the former are discounting reports of the success of the bareleg innovation seems evidenced in the continued expansion of their industry, while it remains to be established that there is any material multiplication of the finest gauge circular knit equipment.

A full fashioned manufacturer who may be voicing an opinion of others in that division said the other day in the course of comment and speculation, "What we must do is make the seam as nearly invisible as pos-

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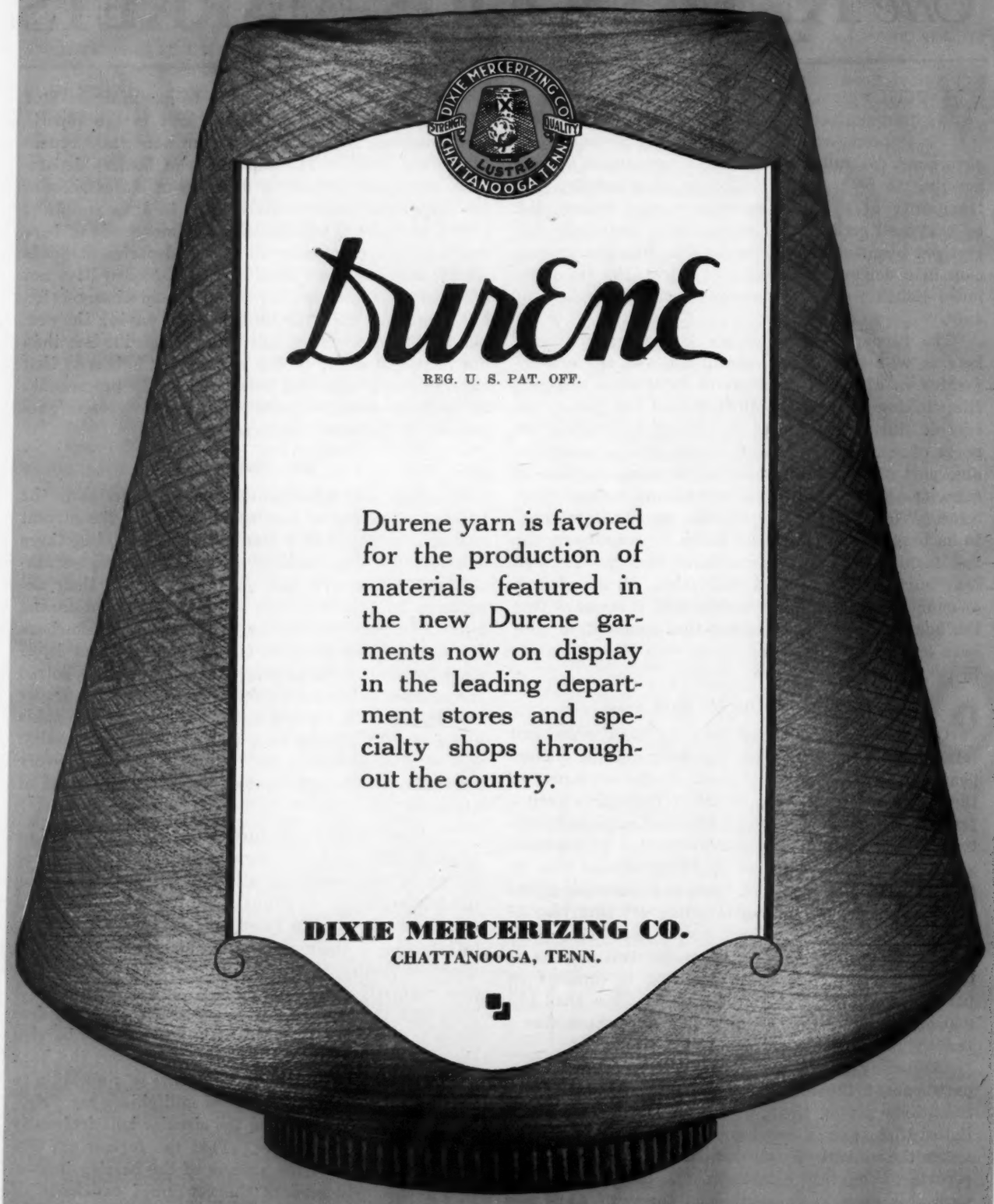
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sible, to match the circular knitted in respect to plainness of fabric, and devise new forms of novelty heel construction, in which the twin-point just now is growing in popularity." That full fashioned silk hose will, in the very near future, embrace attractive features that would be alien to seamless construction aimed at perpetuating the bareleg stocking seems no wild prediction. Nor is it an idle guess that builders of circular machines will provide devices for improving upon current day models of the flat-back stocking.

Silk hosiery prices have eased in the regular course of summer time trading. It is doubtless true that the downward revisions were inaugurated by manufacturers selling nationally advertised brands directly to retailers, and it appears that price cuts were deeper in novelty heel lines than in staples. Necessarily, there have been reductions by numbers of mills distributing through jobbers. But, according to merchants, the revisions on open or unidentified lines have been so slight that they hardly can be passed to the consumer, and need not be in competition with the branded. The cuts are not openly announced, being left by mills as a matter between themselves and their distributors, and some have made no reductions. For example, a manufacturer of 45-gauge 4-thread silk maintains his price of $12 a dozen, which has prevailed for some time, and reports sales for July and August the heaviest in his six years' experience as a manufacturer. While this may be an isolated case, it is significant that, as the summer months ordinarily are the dullest of the year, the mill should be having its peak sales.

Some 33-Gauge in Production.

Contrary to common opinion in the trade, there still are some 33-gauge machines in production in a few of the older mills in a northern knitting center, and it may be regarded noteworthy that inquiries have been received from intending purchasers of 33s, for what precise purpose is not disclosed. The few mills operating 36-gauge equipment appear to have a profitable outlet for the production, some of which is known to be taken by a large chain store organization. As depreciation of 39-gauge and coarser equipment has been written off in inventories until the machines in original hands might be said to represent only a minimum carrying charge, it is pointed out by manufacturers operating modern machines, knitting right good stockings for price is no difficult matter, and for a while may retard any material expansion of the seamless field.

Some interests see in the lowering of prices by certain of the direct-to-retailer manufacturers some connection with the indicated certainty that mills entering into contracts with the American Federation of Labor, under the agreement reached in conferences with committees representing manufacturers and the union, will have a considerably lower cost of production. As this was sought as a means of modifying competition with mills more favorably situated in matter of operating cost, it is suggested, a large part of the saving thus effected will reach distributors. A person speaking with authority in behalf of the manufacturers who are party to the agreement says he looks for no resultant lower prices this year. This opinion was expressed after a half dozen or more mills had announced downward revisions to retailers. Accepting his view, it would appear that when once the new wage pact is in full effect in even an inconsiderable number of mills, prices may be subject to further changes. Competition for business will, of course, determine the course of prices, which, however, hardly can be expected to go much below current levels.

Competition among retailers is just now being more actively waged than in manufacturer circles, judging from quite recent "sales" in Philadelphia. One department store, always in the past getting $1.15 a pair for irregulars of a well known advertised brand, exploited them at an even dollar. Another made a drive with a medium service weight from a mill in Charlotte, N. C., at $1.29, guaranteed to be run-proof. A rival was promptly in the limelight with a similar stocking for $1.19, and a day or two later another came out with a price of $1.09 for hosiery in the same class. It was reliably stated as to the latter that it showed the store a profit of less than $1.50 a dozen pairs.

According to the merchandise manager of one Philadelphia store, the volume retail business in hosiery is obtained during markdown sales. Hence the raid on manufacturers for lower and still lower prices. Philadelphia is said locally to be the hardest metropolitan hosiery market in which first hands may operate profitably in hosiery. One shop ran a sale of chiffon regulars, silk all over, for 75 cents a pair, at a positive loss.

Indicated by production, there is a substantially better market for women's rayon and silk-rayon hosiery, of both full fashioned and circular knit. Comparing with a year ago, production of full fashioned rayon is more than trebled. This may be accounted for in part by statisticians classifying Bemberg as rayon. Bemberg full-fashioned has held well in distribution for the summer even though it is not made in the lighter weight. A recent addition to the line is a full-fashioned Bemberg with a silk top, selling for a dollar a pair. Production of seamless knit rayon for women appears up by about 80 per cent since a year ago.

Manufacturers of women's silk anticipate making inroads this year on women's silk and wool, so described in trade parlance, but ordinarily rayon in mixture with wool and, as to some lines, with a modicum of cotton in twist with wool. They bank on present popularity of anklets to carry them into distribution for winter, to be worn with silk stockings, this combination, according to the "count of chicks prior to incubation," to displace silk-and-wool in no small extent. Some wool hose for early fall delivery has been sold, however, and the comparatively few mills producing sport lines are said to have fared very well in the placing of advance business. From the good repute in which some of the domestic makes of women's lisle hosiery is held, it would appear that it should be no serious undertaking to engage to give cotton a better representation in hosiery production.

Use of anklets among juveniles has met expectations, but has fallen short of what was looked for from women. Sales are reported as including a large

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proportion of women's sizes, but big girls are wearing the 10s and larger. That is apparent from observation alone. They appear to make little appeal to women other than the few who venture in public bare legged and those strolling the bathing beaches or engaged in sports. That women will wear them for protection when weather conditions dictate caution is regarded in the trade as foreshadowed by their use last spring and in the winter months, and this, it is held, points to silk stockings for the chill days, and when the lanes of foot traffic are in a somewhat liquid state.

That the anklets are here for at least another season or two seems not doubted by manufacturers and distributors. Leading jobbers say they have had unexpectedly large sales, and are "sold on them." The buyer for one of the larger jobbing houses in the East says that what most impresses him is the demand for children's anklets to sell for 25 cents a pair, to the almost utter exclusion of 50 cent goods. "We have some marvelously made and attractive 25 cent lines," he said, "and probably the retailers see no object in trying to push higher price goods. We find them displacing infants' socks very fast," he added, and said he thought the anklets have resulted in revolutionary changes in footwear for infants. In a few weeks something definite as to the sock or anklet trend will be revealed, with the opening of mill lines for the next season.

Outstanding among the primary market developments in relation to men's fancy half hose is an expressed dissatisfaction of some important manufacturers with the business taken by their selling agents. The mill agents often have been unable to make it clear to their manufacturers why sales were lagging. The fact that even some of the old-time, well established selling agents had failed to maintain their average volume of business was due to frequent change of patterns and keen jobber competition with manufacturers selling direct to retailers, at the risk of disturbing their conscience. Agents are the first to hear of competitive buying by syndicates of jobbers and by chain store organizations and mail order houses. The manufacturer placing dependence in his agent, does not frequently bother with going to the markets for first-hand information of conditions, and when he does, and finds them as bad as indicated in his sales, he is prone to place blame on the agent rather than on his line.

The mill agent obviously has suffered a handicap in the hand-to-mouth buying policy of most jobbers. As has been shown by changes in recent years, the more that distributors follow this practice, the more will mill products be sold direct. George Guenther & Son, Reading, Pa., on July 1st began selling their production to independent jobbers, after their lines of women's seamless and men's fancy half hose had been distributed for years by one of the better known mill agents in New York. The firm maintained that by one of the members selling the goods from the mill office the sales cost would be less than if through a mill agent, and it was purposed to give to the jobbing trade the benefit of the amount of saving. This, of course, appealed to jobbers whose accounts were sought and who had not been carrying the line. The firm be-

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lieves that, besides the change working an economy, the mill must of necessity be in closer touch with jobbers and, depending on the character of the firm's relations with them, it would be better able to adapt style changes opportunely and keep new numbers coming along as others passed out of the picture. A few weeks before announcement of direct selling was made by Guenther & Son, the Iris Hosiery Co., also a Reading manufacturer of fancy half hose, withdrew its account from one of the more distinguished mill agents in New York and began distributing through its own sales manager, a practice which has been steadily adhered to by the Gehman Knitting Mill, in the Reading area, specializing in novelty half hose, with much success.

It is the theory of some factors that manufacturers who are not practical merchandisers are likely to expect more from mill agents. Yet when put to the test in a highly competitive market they often achieve what was thought to be beyond them. Since novelty construction has been simplified in large measure by the builders of knitting machines it is now up to the manufacturer, dissatisfied with his agent, to solve the marketing problem, and recent developments indicate that some have undertaken to do so.

In communities where there are clusters of mills in given lines, it would appear, the opportunities for direct selling to jobbers are better than among scattered manufacturers. Reading, for example, is a city visited by many buyers, from the better distributing points. Numbers assemble there as naturally as the great majority gravitates to New York as the metropolis among the country's markets. The salesmen going out from the mills in Reading have within a two hours travel by train access to the jobbers of New York and Philadelphia. That the city of Reading is an advantageous center in respect to direct selling is referred to illustratively. It seems a safe assertion that the big knitting centers in the South offer like facilities to visiting buyers, but may not be in so strong a position for eliminating the mill agent in New York and several other northern cities. It may be put down as assured, however, that, regardless of the location of mills, the trend will be to economy of distribution and a shortening of the route, figuratively, between manufacturer and merchant. Direct selling is an offspring of distributor hand-to-mouth buying.

Although styles in men's half hose are converging on the distinctly chaste in design and less intricacy in color combinations, it seems a settled conviction in the trade that the strictly plain offers little opportunity for volume distribution. Such a view accords with the discontinuance of the manufacture of silk half hose by the Northmont Hosiery Corporation, in Reading, selling to retailers only. The company for some half dozen years or more has been rated one of the more successful producers of full-fashioned silk socks for men. It announced quite recently that it had disposed of its half hose machines and was utilizing the space thus made available by installing more equipment for the manufacture of women's full-fashioned silk. The mill for years has been operating steadily on a 24-hour day schedule.

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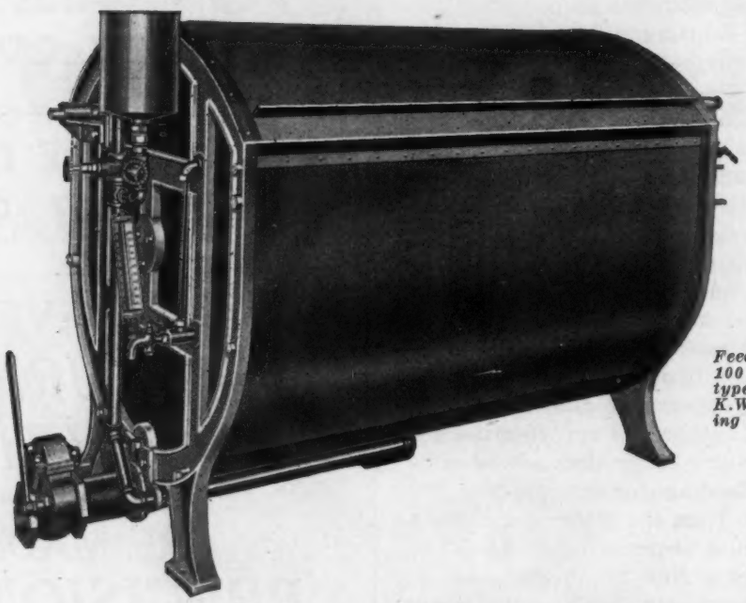

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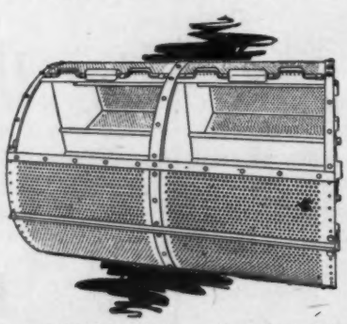

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that output of silk hose has declined materially from the spring and summer of 1928. Some market factors believe that since half hose as a class is in much subdued designs it is heading toward the plain, and that seamless silk is destined to be in better call.

The markets for underwear are showing a better than the average summer stride. It so happened that during weeks of highest temperatures there was more activity in men's heavy weight cotton ribs. Buying was not, of course, given a spurt for any reason other than that jobbers are so close to needs for fall deliveries that it hardly could be longer deferred with any degree of safety, and mills report through their New York agents some rather substantial bookings in July.

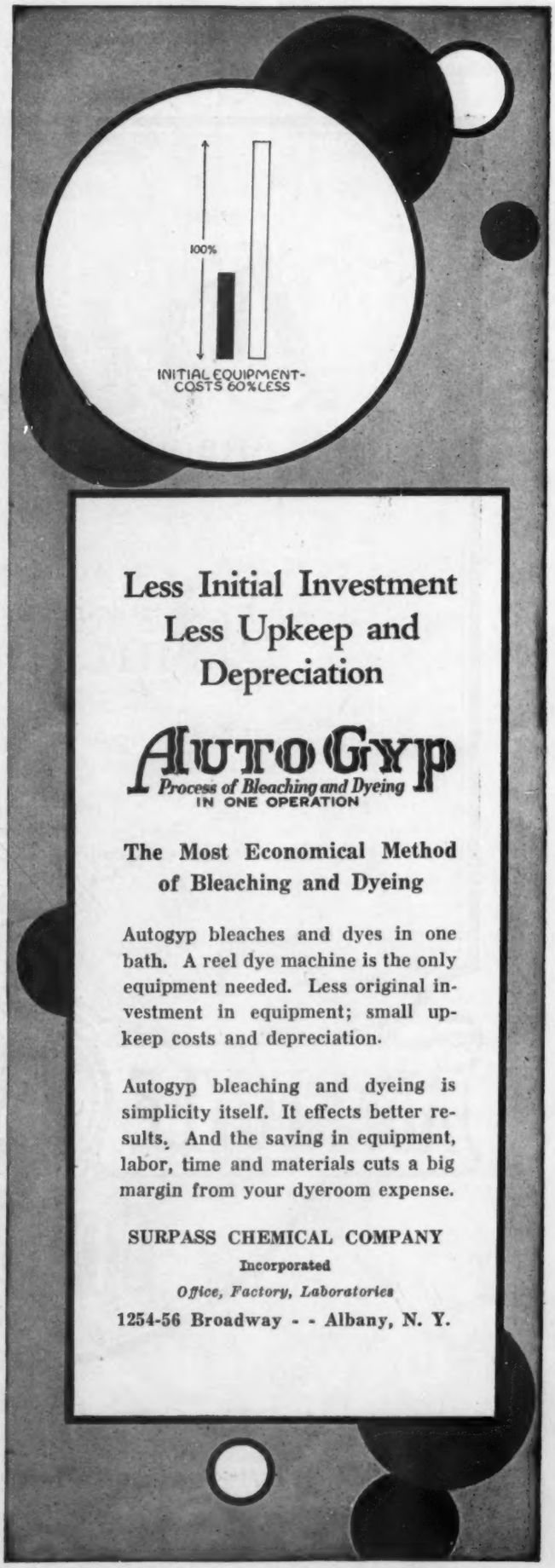
Wholesalers already had come to feel that prices were safe. That reductions were practically out of the question no one doubted. When first prices came out and one mill in particular named figures that were declared to be unwarrantably low, the management was bitterly criticized. More than one factor has since voiced the opinion that that mill's prices proved a bar to downward revisions, and could be credited with having unwittingly laid the foundation for a steady market, though a slow one for a time.

Heavyweights have moved fairly well. Their market has passed the crisis and, barring untoward happenings, should gain strength during the next three months, making another spurt with the opening of mens' light weights for the next season.

Retailers, judging from jobbers frequent repeat orders, have had an active and profitable season. As light weights are in increasing use for all year round wear, interest in knitted union suits seems likely to be maintained until at least winter temperatures call for the heavier garments. All lines continued in good call in July, but it was thought union suits soon would in a large measure show more primary market activity than the athletic shirts and shorts.

Some time was required by manufacturers of rayon underwear to adjust their prices to the declines in rayon yarns which became effective recently. Buyers had demanded of them sharper reductions than were justified by the reductions in rayon yarns, and while first sellers were resisting such demands, there was a suspension of activity in the rayon garments. But manufacturers were in need of business and cut prices in efforts to get it. This had an effect contrary to what they had looked for. Buyers for large department stores said "prices were shot to pieces," and that so long as a semblance of steadiness was lacking they would buy nothing for fall. "We shall place no orders before September," said one large quantity buyer. It was the attitude of buyers that eventually forced manufacturers, who were sacrificing profits in competition for business, to establish a bottom. This appears to have been attained, but at a serious loss to manufacturers.

The cut in rayon yarn proves to have been made inopportunely. Jobbers of rayon products took advantage of it and manufacturers had to meet it. They appear to have checked price competition by going to an irreducible minimum. All that they have gained is a better volume of business, on which can be figured a lower overhead cost. But the worst results from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Autogyp bleaches and dyes in one bath. A reel dye machine is the only equipment needed. Less original investment in equipment; small upkeep costs and depreciation.
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Representatives in All the Principal Countries of the World

the cut in rayon yarns is to come, in the opinion of some interests, who believe, from experience, that numbers of underwear manufacturers will cheapen their lines and again discredit rayon as a fibre suitable for underwear. In some retail establishments serving the better trade, rayons are reported outselling glove silk. In a fabric recently brought out by the Glanzstoff company as a sample for showing the possibilities of that fibre, Glanzstoff was plated on silk, and the effect was regarded a forerunner of some important developments.

Women's fine gauge cotton underwear in sunback models is having a fair sale, considering the popularity and low prices of rayons. The cottons in delicate tints are reported quite acceptable in some quarters where they became taboo, for a time, after the introduction of rayon lingerie. Some of the few manufacturers express themselves as well satisfied with results from their offerings of sunback cottons and look for their greater use next season. Mills are receiving a fair amount of business in medium weight cottons for women.

Bathing suits have rounded out the best season manufacturers have had in years. For the next season they will be seen in more colors and less fabric, judging from private peeps at samples for the opening August 1st. The suits of some manufacturers are cut out deeper in the back and draw up slightly in the front, and armholes will be larger. Each of a number of manufacturers is showing from 25 to 40 models, in which there are represented as many as 30 colors. By making the suits in more striking designs and brighter parti-colors they still will be visible even though the fabric shrinks more than normally. To go much further in the way of abbreviation of the garments there would not be enough left to send to the laundry.

Manufacturers never approached an opening with more enthusiasm. Some who permitted favorite buyers to take an advance look at samples say they are assured of enough business to keep their plants engaged steadily to the end of the year. Few mills have any leftover stocks, and jobbers and retailers are understood to be equally well situated. A year ago there were carryovers that were the cause of late and hesitant contracting. This year all hands start with empty bins and shelves. From reports of manufacturers, it may be said that not one has enough of present models to stock a crossroads retail store for a Saturday's selling.

There are intimations that prices will start lower than at the opening a year ago, as worsted yarns are costing mills quite a bit less. Many of the mills plan to use worsted singles for most of their production. The cost of the suit will be less to the mill and, according to yarn interests, the wear will be correspondingly less for the consumer. Some few manufacturers will knit up only two-ply yarns. These state they manufacture for only the better trade and can price their suits accordingly. Bathing suits are one commodity that jobbers who handle them must buy well in advance of the distribution season. This year there was a shortage at the tail end of the season, although orders ran large. There was tardiness in placing much of the business, however.

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HARD MAPLE HOSIERY BOARDS

Give you that much desired finish that cannot be obtained from any other than wooden boards.

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Our special finish is highly recommended for silk and chiffon hosiery.

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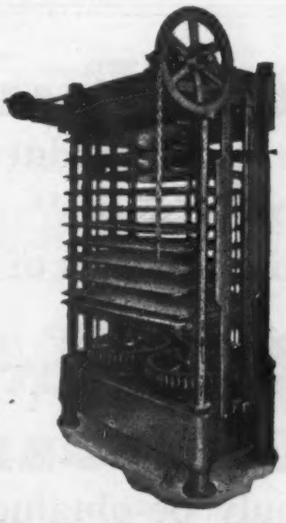

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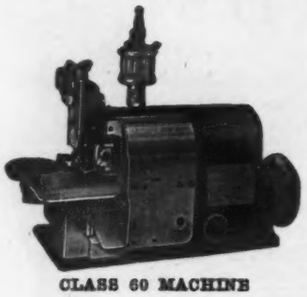

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INQUIRE ABOUT NEW MERROW MACHINES

STYLES 60-ABB and 60-D3B

For simultaneously trimming and joining ends of cotton, silk or woolen piece goods with a

FLAT BUTTED SEAM

Permits goods to pass through finishing machines, uninterrupted, for such operations as Shearing, Calendering, Mercerizing, Bleaching, Dyeing and Printing—with *remarkable saving*—both in labor and fabric.

Butted Seam, natural size, made by STYLE 60 ABB MACHINE on Cotton Goods which have been subsequently processed. The STYLE 60 D3B makes a similar though much wider seam designed for use on sleazy or loosely woven goods to insure holding.

OTHER RECENT DEVELOPMENTS—FOR THE RAYON TRADE

STYLE 60 RD —For a three-thread overedge finish, either straight or scalloped, on Rayon Bedspreads and other sleazy articles on which the ordinary edge finish will not hold.

STYLE 60 JDC —For two-thread FLAT SEAMING on Rayon Underwear.

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RAYON FILLING

that will not produce one

"Shiner"

in a million yards of fabric

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For all Mechanical Purposes

Slashers and Roller Cloth for Cotton Mills.
Felt wicks and washers for
FULL FASHION HOSIERY MILLS
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Samples and Prices Upon Request.

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SINGLE or PLY

Natural---Gassed---Dyed---Bleached

MERCERIZED YARNS

All Counts and Descriptions for the Knitting, Weaving and Converting Trade

DIXIE

MERCERIZED YARNS

Sweaters are doing better for most manufacturers, and some might be mentioned who are operating to plant capacity on overtime schedules in the production of shakers. The business in hand is not well distributed, however, quite a number of mills being in need of orders. At the rate of improvement in the last month, it is reasonable to suppose that mills generally will soon be in receipt of all the orders they can take care of this year.

Sweater manufacturers have been taking in worsted yarns on the hand-to-mouth basis, the policy referred to as responsible for more of direct selling by manufacturers. Two worsted spinners of knitting yarns in the Philadelphia area who formerly sold in New York through jobbers, recently eliminated them entirely and have established their own direct selling offices, with service warehouses for the Manhattan and Brooklyn trade. The change caused a jar among yarn jobbers generally. Spinners a month ago began guaranteeing their prices against reductions, but this failed to stimulate buying, which is being much retarded by confusion over a price fight, resulting in the lowest values during the last year.

New England Mill Situation.

(*Continued from page* 1138.)

It is not thought that the new plan has an even chance of being tried in the fine goods industry of New England under present conditions.

In the past month there has been a great deal of talk in the New York markets of the effects on mills of the very great extension of the system of buying goods through syndicates, mergers, chain stores, large aggregations of department stores and other forms of trade combinations. The buyer has become so strong and so dominating in the possible outlets for mill merchandise that competition for his business has brought prices to a highly competitive and oftentimes an unprofitable level for the mills.

Some of the mill agents and commission merchants feel that they are being driven to the point where in the interest of their manufacturing clients they will be forced to combine and strengthen their position as sellers. It has been demonstrated that even where mills have established a most efficient selling policy amply backed by the necessary capital to carry and produce goods they are becoming more limited in their outlets in consequence of the number of mergers that are taking place in the field of distribution.

Under many of the new systems that are operating in the distributing field the one who is penalized is the producer. This may or may not be due to excessive production but it is significant that the costs of distribution between the producer and the consumer are not being lowered for the benefit of the two latter facors in the industry.

New England manufacturers have been working in harmony with the Association of Cotton Textile Merchants and the Cotton Textile Institute in trying to regulate production more nearly in accordance with the known demand for goods. New Bedford mills are operating on a curtailed plan, the wide sheeting mills in New England are operating on a 65 per cent schedule of output, Rhode Island mills expect to stop an average of three weeks before November and mills in other sections have been allowing machinry to stand idle as orders expire or as it is found impossible to renew them at a profit.

At the annual meeting of the Dwight Manufacturing Co. in Boston, this month, the treasurer's report showed a loss of $259,115 after depreciation charges of $206,399. This compared with a loss in the preceding year of $2,891 after $189,996 depreciation charges. This company has a plant

Correct Processing of Rayon Yarns Makes Quality Finished Products--

PLANTS

New York, N. Y.

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The value of your finished products depends to a great degree on the yarn that goes into them. Correct processing will show the value of a good yarn. Poor processing makes a fine yarn mediocre.

Four great plants are your assurance of uniformity and high quality processed rayon yarns—Rayon yarns on tubes, cones, cops, warps, beams, bobbins, crepe twists and shiffli; direct, tub fast, sunfast and indanthrene dyes.

To be sure of the right yarn for the right use is to have The Yarns Corporation of America serve you—

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290 Fourth Avenue, New York

Processors of Crown Brand Rayon

KARL LIEBERKNECHT

Full Fashioned

HOSIERY MACHINES

Are Known for

Speed When Needed— Quality Production Always

(The Machines Confirm It)

Manufactured by

KARL LIEBERKNECHT, Oberlungwitz, Saxony

(In Any Desirable Gauge and Number of Sections)

Imported and sold exclusively by

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Lieberknecht Hosiery Machines have been made by KARL LIEBERKNECHT, Oberlungwitz, Saxony, continuously since 1873

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Celanese is stripped to a pure white regardless of the shade by the **Stripper X** method. Send us your dye yarns and we will strip and forward formula.

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Chemicals of Originality

Angle Steel Equipment

for Factory, Shop and Office
Ask for Catalog "C-C"

Knitters' Benches, Tables, Boxes, etc.—Angle and Sheet Steel Stools—Chairs—Desks—Bench Legs—Cabinets—Trucks.
Agents and Dealers in all Principal Cities
ANGLE STEEL STOOL CO.
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Liquid EBG Chlorine

The service is equal to the product.
In 100 and 150 pound Cylinders, Ton Drums, and Tank Cars.

Electro Bleaching Gas Co.
PIONEER MANUFACTURERS of LIQUID CHLORINE
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With Our
EXPANDING INSPECTING MACHINES
LEARN TO HATE DYED MENDERS
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MANUFACTURERS OF
Cotton Mercerized Tapes, Spool Tapes, Bindings and Narrow Fabrics for Underwear and other Trades.

in Alabama and manufactures 51,000,000 yards of various kinds of goods during the year.

Herman F. Straw of the Amoskeag Manufacturing Co., died July 8th at his home in Manchester, N. H., aged 79 years. He was the son of Governor Straw of New Hampshire who had also been agent of the Amoskeag. After 45 years with the company he resigned the office of Agent in 1917. His son, Colonel W. Parker Straw, was promoted to the position but resigned a short time ago. He is now affiliated with the firm of Wellington, Sears & Co., and will spend much of his time in watching the product of this firm's cotton duck mills in the South.

The Association of Finishers has now granted 20 licenses to its members for the use of the "Nafal" brand which is a standard of color test accepted by the Association and maintained for it by Pease Laboratories, Inc., an independent research organization devoted to geenral chemical work.

Chatillon Plans World-Wide Manufacturing.

Dr. D. M. Balsam, President of the American Chatillon Corporation and chairman of the Committee on Foreign Negotiations, sailed for Europe on Monday, July 1, for the purpose of consummating negotiations with textile groups in a number of foreign countries for the erection of plants which will manufacture and spin Chacelon, the new and totally different cellulose acetate yarn.

The American Chatillon Corporation holds the exclusive rights in practically all the world to the new patented processes which are now being used in the manufacture of Chacelon at the company's plant in Rome, Georgia.

It is expected that the different textile groups in the foreign countries will supply the capital for the erection of the new plants, and that because of the immense value of the processes it owns, the American Chatillon Corporation will have a half-interest in these plants for its patents, technical knowledge, plans, drawings, etc.

Appointed New England Representatives.

Clarence L. Meyers, Inc., Philadelphia, Pa., manufacturers of quality mercerized yarns and durene, have appointed Catlin and Co., Boston office, as distributors of their product in New England and New York State with the exception of New York City.

Cotton for Fish Line.

More than two-thirds of the fish line manufactured in this country is made of cotton, according to the Cotton-Textile Institute. Reports compiled by the Department of Commerce show that in 1927 the production of all kinds of fish line amounted to 679,405 pounds, of which 467,009 pounds were of cotton. This was equivalent to 68.7 per cent of the aggregate.

Carrier Opens Detroit Office.

The Carrier Engineering Corporation, specialists in air conditioning, with main offices and laboratories in Newark, N. J., has announced the opening of a permanent engineering and sales office in the Buhl Buiuding in Detroit, under the direction of Herbert Peacock. The growing demand for air conditioning in public buildings in this territory invited the opening of the new office.

Herman A. Metz Prizes.

As in past years, the competition incited by the Herman A. Metz prizes at the Textile High School in New York City, was very keen this year. Recipients of the prizes were: for Batik and Dyeing, Giovanna Nicotina and Mary Bekoff; and for Chemistry and Dyeing, Matthew Rothman and Alfred Szabo.

New Plant in Operation.

The Southern Chemical Co., 28 Leonard St., Charleston, S. C., began operations on July 1. The new company manufactures sizing compounds and oils.

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THROWN SILK
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COMMISSION THROWING
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Rayon, Celanese, Silk,
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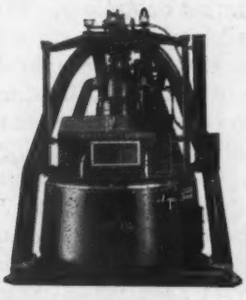
He can't get near it until it stops!
YOUR extractor-man can't reach into the revolving basket of the Humatic Hydro Extractor until it comes to a dead stop. THEN, AND NOT UNTIL THEN, DOES THE SAFETY DOOR RISE—AUTOMATICALLY.
Besides such safety features, the Humatic has many other advantages—such as automatic timing—automatic stopping—uniform extracting. Write for details.
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Norwood Station, CINCINNATI, OHIO
The Canadian Laundry Machinery Co., Ltd.
47-93 Sterling Road, Toronto 3, Ont., Canada
For every dye-house need . . . a *specialized* machine.

The YARN MARKET

Philadelphia, Pa., July 13, 1929.

DURING the latter part of the last report period we reported here complaints made by Philadelphia yarn distributors against their New York competitors—charging them with uneconomic practices, underselling, etc. These charges were met with a flurry of heated denials by telephone, mail, and other forms of controversy. When the smoke of battle finally lifted and the atmosphere had become somewhat more clarified, it appeared that some of the Philadelphia yarn distributors had been a little hasty in making their charges.

The first part of the present report period, the week beginning June 17, found the spinners and yarn sellers assuming the firmest stand in regard to prices that they had taken in some time. The demand for carded and combed yarns was greater than it had been any time during the past few months, which was a factor in causing the prices of carded yarns to be approximately one half a cent per pound higher than they were during May. It was believed by many that the talk of curtailment during July and the scarcity of good staple cotton had also been major factors in causing the market to realize the most favorable conditions it has known during the past three months.

The first part of the next week experienced a slight increase over the week-end in both sales and inquiries. The sellers and spinners were remaining very firm in prices asked, and some absolutely refused to sell at the present market quotations. There was also a great amount of talk concerning curtailment and it really appeared that the most general shut-down known to the industry in years was in store for the next two months. Several mills stated that they would close down on Friday, June 28, and remain closed until Monday, July 8, while most others planned to remain idle during the week beginning July 1. It was believed by many that if this curtailment plan was as general as might be expected from statements made, that the market as a whole would be in very good shape next Fall.

The next week, the week ushering in the new month, July, was an unusually quiet one, which, of course, was partly due to the mid-year holiday. Most yarn men were of the opinion that the business done the first half of the present year exceeded that of the same period last year, and that Fall held more in store for the market than any previous period has held for some time. Many were very dubious as to whether or not the Government report, which would be issued soon, showing the number of acres planted in cotton, this year would have any effect on cotton quotations. The majority were of the opinion that the cotton market was to remain fairy stable for awhile. Due to the difficulty experienced by several buyers in obtaining the quality of yarn desired, many were paying from one-half to two cents more for combed yarns than they had paid for some time. Everything considered, the future outlook for the yarn market appears to be rather bright.

The week following the holiday period was reported by many as being an unusually quiet one. Some houses, however, reported a very good increase in both inquiries and sales, especially in sales of carded and combed yarns, stating that the sales of these yarns for the present month had already exceeded the entire sales made in June. But in the majority of cases it seems that buyers' prices were such as to prevent the materialization of inquiries into sales, as most sellers are standing rather firm in regard to prices asked.

The government estimate of 48,457,000 acres being planted in cotton this year seemed to cause some optimism among a few of the sellers, as many were expecting the figures to be much larger. Many figured that this estimate would have little effect on the market though, and that boll weevil and weather conditions would in a large measure influence the cotton market quotations. A large number of sellers believe that contracts will flow in more freely as soon as some of the uncertainty concerning the cotton crop is removed.

Philadelphia prices on July 13th follow:

Single Skeins

4s to 8s	29½ @30	10s	30½ @31
12s	31 @31½	14s	31½ @32
16s	32 @32½	20s	33½ @34
24s	35½ @36	26s	36½
30s	37½		

Two-Ply Skeins.

8s	30	10s	31
12s	31½	14s	32
16s	32½	20s	34 @34½
24s	36½ @37	26s	37 @37½
30s	38	40s	46

Single Warps

10s	31 @31½	12s	31½ @32
14s	32 @32½	16s	32½ @33
20s	34 @34½	26s	37 @37½
30s	38 @38½		

Southern Two-Ply Warps

10s	31½	12s	32
14s	32½	16s	33
20s	34½ @35	24s	37
26s	37½	30s	38½
40s	46 @47		

Frame-Spun Carded Yarns on Cones

8s	29	10s	30
12s	30½	14s	31
16s	31½	18s	32
20s	32½	22s	33
24s	35	26s	35½
30s	37½	40s	45
30s dbl. carded	39½	30s tying in	36

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 hard white warp twist	29½ @30
8s and 9s tinged tubes	28 @28½
8s 3-4 hard twist waste	27½ @28

Two-Ply Combed Peeler Skeins and Warps.

8s	44	20s	46
24s	51	30s	53 @54
40s	56½ @57½	50s	60 @62½
60s	68 @70	70s	78 @80
80s	90 @95		

Single Combed Peeler Yarn on Cones.

18s	42	24s	45½
30s	50	36s	52 @53
38s	53 @54	40s	54 @55
50s	61½	60s	68½
70s	78½	80s	92

Mule Spun Carded Yarn on Cones.

10s	35	12s	35½
14s	36	16s	36½
18s	37	20s	37½
24s	39	26s	40
30s	41	40s	49

Mule Spun Combed Peeler Yarn on Cones.

10s	44	12s	45
14s	46	16s	47
18s	48	20s	50
22s	51	26s	52
28s	53	30s	54
36s	57	38s	59
40s	60		